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GRAIN TRANSPORTATION



An Analysis of

GRAIN TRANSPORTATION IN THE NORTHWEST

U.S. DEPARTMENT OF AGRICULTURE • ECONOMIC RESEARCH SERVICE • ERS 200



PREFACE

This study of the changing patterns of grain transportation in the Northwest is part of a broad program of research by the Economic Research Service, U.S. Department of Agriculture, to improve the marketing of agricultural products.

There is much interest among grain producers, carriers, country and terminal elevator operators, marketing firms, and other groups as to possible changes in the various aspects of grain marketing. This study provides data for one of these aspects--transportation. It was undertaken in response to the expressed interest of the grain trade in the extent and the reasons why other modes of transport are participating in grain movements which for many years were almost exclusively handled by the railroads.

This report analyzes grain transportation for the marketing years 1956-57 through 1960-61 within and from the Northwest. The States included are Idaho, Montana, Oregon, Washington, and Wyoming.

The analysis in this report was based primarily upon data furnished by a sample of country and terminal elevators and processors located in the five Northwestern States. The data were summarized from questionnaires completed by respondents in the survey.

Tables providing primary and secondary data used in the survey are available upon request to:

Marketing Economics Division
Economic Research Service
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Washington, D.C. 20250

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Additional assistance in completing interviews was given by Larry Brownell, Montana State College, Bozeman, Mont.; Lewis D. Walker, Idaho State University, Moscow, Idaho; and James G. Youde, Oregon State University, Corvallis, Oreg.

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SUMMARY

Grain transportation in the Northwestern States is changing. Motor carriers are moving more grain from country elevators and rail carriers less. Country elevator operators in Idaho, Montana, Oregon, Washington, and Wyoming shipped 290.1 million bushels of Government and nongovernment grain in 1960-61. Seventy percent was shipped by rail--30 percent by truck. Truck shipments were 26 percent of total shipments in 1958-59. The most noticeable shift is occurring in the movement of nongovernment grain from country elevators. Sixty-eight percent of the nongovernment grain shipments were transported by rail from country elevators in the 5-State area in 1960-61. In Montana, the largest grain producing State of the Northwest, rail shipments of nongovernment grain dropped from 80 percent of total shipments to 73 percent during the 3-year period 1958-59 through 1960-61. In Wyoming, rail shipments dropped from 96 percent of total shipments of nongovernment grain in 1958-59 to 75 percent in 1960-61. Rail shipments of Commodity Credit Corporation grain declined 1 percentage point during the 3 years in all States combined, although there was an increase of 2 percentage points from 1958-59 to 1959-60.

Of the grain shipments from country elevators, 53 percent terminated at markets of first destination in the Pacific Northwest (Oregon and Washington), 16 percent was shipped direct to terminal markets in the North Central States, 14 percent went to terminals in Montana, and 13 percent was shipped southward to Idaho, Utah, Colorado, California, or other Southwestern States. Of all the grain shipped within the Pacific Northwest, 35 percent left the country elevators in trucks.

About 10 percent of the grain trucked on behalf of country elevators was hauled directly from farm storage to market; it was not elevated at the elevator. Shipments of grain direct from farm storage by country elevator operators was most evident in Washington-North Idaho, where about 24 percent of the trucked grain was moved in this manner. Fifty-eight percent of the country elevator operators in South Idaho, 53 percent of those in Montana, and 33 percent in Washington-North Idaho believed that bypassing in their areas was significant.

Common or contract carriers were the predominant type of trucker used for transporting grain. These carriers hauled 40 percent of the truck shipments in 1960-61. Exempt for-hire truckers transported 32 percent, private truckers transported 16 percent, and itinerant merchant truckers and elevator-owned trucks transported the remaining 11 percent. Eighty-five percent of the trucked grain was shipped to terminals, 11 percent was shipped to processors, and the remaining 4 percent was shipped to feeders. Common ^{or} contract carriers were used predominantly for grain shipments to terminal destinations, elevator-owned trucks were used predominantly for shipments to processors, and exempt for-hire truckers were used mainly for shipments to feeders.

Thirteen terminal elevator operators and 12 processor operators reported grain receipts by truck amounting to 17.6 million bushels. Of this total, 53 percent was received from country elevators; 30 percent, directly from farmers; and the remainder, from other sources. In 1960-61, a total of 58.1 million bushels of nongovernment grain was shipped from the 13 terminal elevators, a high for the 5-year period beginning 1956-57. Export shipments averaged 83

percent of the shipments while domestic shipments accounted for the remaining 17 percent. Rail carriers transported 84 percent of domestic shipments from terminal elevators in 1956-57, compared to 60 percent in 1957-58, 54 percent in 1958-59, and 54 percent in 1960-61. Domestic shipments of Government grain from terminal elevators have continued to move predominantly by rail.

Freight rates have been more influential than service factors in causing a shift in the type of carrier used for transporting grain. Of the country elevator operators surveyed, 60 percent stated that rail rate increases since 1946 had caused them to shift to other forms of transport. Most replied that the shift away from rail carriers had been gradual, becoming more pronounced during the 1950's.

Since May 1958, rail rates have been reduced on grain shipments to West Coast ports from most of the producing areas in the Northwest. However, elevator operators in Wyoming reported that there have been no rate reductions from their area. In States where rate reductions have occurred, 38 percent of the elevator operators increased their rail shipments as a result of the lower rail rates.

In the Pacific Northwest, rail rates for grain are closely competitive with truck and truck-barge rates. Rail rate reductions since September 1960 have resulted in litigations concerning the justness and reasonableness of the reduced rates. In September 1963, the Interstate Commerce Commission issued an order cancelling the competitive or limited transit rail rates that had been in effect since September 1960, but this order was stayed pending further disposition of petitions for rehearing and reconsideration. The normal transit rates, averaging about 4 cents per bushel higher than the limited transit rates, were investigated and found lawful.

In South Idaho, the westbound truck and rail rates are competitive at distances from 500 to 750 miles but become less competitive as distance increases with truck rates becoming the lower of the two. Eastbound rail rates from Montana range generally from 1 to 2 cents higher than per-bushel rates for westbound shipments. Westbound rail rates are about 32 percent higher than truck rates; eastbound rail rates average approximately 26 percent higher than truck rates. Rail rates for eastbound shipments of grain from Wyoming were highest; they more than doubled the truck rates for distances up to about 400 miles. They averaged 56 percent higher than westbound rail rates in Washington for similar distances.

AN ANALYSIS OF GRAIN TRANSPORTATION IN THE NORTHWEST

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INTRODUCTION

Marketing Grain in the Northwest

The marketing process for grain starts at the farm. Grain harvested by the farmer is usually delivered to nearby country elevators and sold according to grade and the prevailing market price less transportation and handling costs. In other cases, farmers sell their farm-stored grain to country elevator operators without actually delivering it to the elevator. The grain is loaded into semitrailer trucks hired by the country elevator operator for delivery to distant markets. The country elevator operator assumes all responsibility, and the trucker delivers the grain to the final destination, stopping at the country elevator for sampling and consigning the grain. Farmers sometimes sell grain directly to truckers, but this is not a usual practice.

Most grain produced in the Northwest is shipped from country elevators to terminal elevators at the major western ports or to the major terminals at midwestern or southwestern markets. The choice of transportation is usually left to the elevator operator. For shipments to flour millers or other grain merchandisers, the receiver often specifies rail transportation because of the available transit privileges for rail shipments.

Grain produced in North Idaho, Oregon, Washington, and western Montana is shipped predominantly to northwestern coast ports with limited quantities moving into California or eastward to Minnesota. Grain shippers in central Montana ship grain either to the West Coast or eastward to Duluth-Superior, Minneapolis, and other terminal markets in the Midwest. Shipments from eastern Montana and Wyoming move eastward to terminals at Duluth-Superior, Minneapolis, Chicago, St. Louis, Salina, and Kansas City and southward to Denver, Salt Lake City, and Ogden. Grain shipments from South Idaho move into the Pacific Northwest, California, and Utah. Most of the grain moves from country elevators in rail cars.

Truck shipments from country elevators in the Pacific Northwest (North Idaho, Oregon, and Washington) are predominantly short-haul movements. Distances from country stations to river ports such as Pasco and Kennewick, Wash., or Umatilla, Oreg., seldom exceed 100 miles; and distances from country elevators in North Idaho to the Portland or Seattle port areas are usually less than 400 miles. Much of the trucked grain is delivered to river terminals at Pasco-Kennewick and vicinity and transferred to barge for movement to Portland and Astoria, Oreg., or Vancouver and Longview, Wash. Rail shipments from the Pacific Northwest and Montana are shipped through diversion and reconsignment

points.^{1/} Spokane and Pasco-Kennewick are such points to which grain is shipped prior to movement to the Columbia River or Puget Sound areas for export. The diversion points serve to facilitate rail-car movement to the ports, according to the schedules of ship loadings, and eliminate delays in car turn-around time that would result from concentrated or uncontrolled shipments to one port. Rail diversion points for grain moving eastward from Montana are located in Great Falls and Shelby, Mont., and Minot, Jamestown, and Grand Forks, N. Dak., where grain is diverted to various midwestern markets.

With the advent of alternative transport methods, competition among grain merchandisers has increased. Trucking has been made a part of the grain marketing system, and grain merchandisers rely upon trucks as well as rail carriers for transportation service.

Barge and truck-barge service has grown, due largely to attractive rates. Lower unregulated trucking charges, as well as flexibility, often permit the elevator operators to bid more for a farmer's grain. Distance from the farms to the country elevators is no longer a factor of great importance. Farmers truck their grain farther, often for a few cents more on the price for a bushel of grain. Country elevator operators, before the rail rate reductions in 1958, began trucking grain to compete more effectively with their rivals.

This survey presents data collected from country and terminal elevator operators and processors. It shows the volume of grain shipped by rail and truck from country elevators for the years 1958-59 through 1960-61 and the distribution of grain by market areas for 1960-61. An analysis of the opinions of the interviewed grain merchants is made to determine reasons for increased grain shipments by truck and barge carriers, the effects of various carrier services and rates, and the effects of grain freight rate changes since 1946.

Purpose and Method of Presentation

Data for the grain transportation survey of the Northwestern States were compiled and are presented for each of these States. For purposes of the survey, Idaho was divided into two parts. North Idaho contains all counties north of and including Idaho County and was combined with Washington. South Idaho was considered as a separate area. The production and marketing characteristics of North Idaho and Washington are similar but differ considerably from the characteristics of grain production and marketing in South Idaho. Data developed for the Northwest are presented by the following areas: South Idaho, Montana, Oregon, Washington-North Idaho, and Wyoming (fig. 1).

Discussion was held with various people in the Northwest to obtain their suggestions for presenting data and preparation of a questionnaire. At a meeting arranged for reviewing Northwest grain statistical projects in Portland, Oreg., on January 23, 1962, plans for this study were presented. It was generally agreed that this survey would add to the general knowledge of production and distribution of grain in the Northwest and provide useful information pertaining to the grain transportation situation.

^{1/} Diversion or reconsignment permits a change in consignee, route, or destination while the grain shipment is in transit.

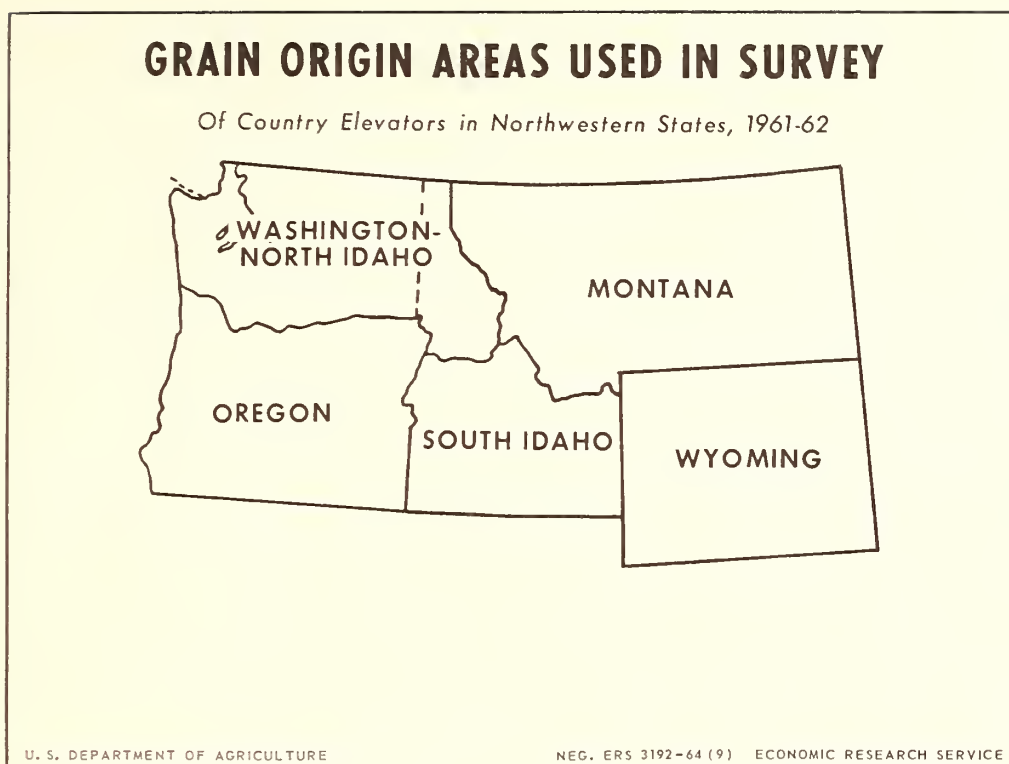


Figure 1

GRAIN PRODUCTION IN THE NORTHWESTERN STATES

Grain production in the five Northwestern States accounts for about 6 percent of the total grain produced in the United States. The Northwestern States do not produce a wide variety of grains but tend to specialize in wheat and barley, and oats to a lesser degree. They produced on the average about 13 percent of wheat, barley, and oats grown in the United States from 1956 through 1962.

Although data were not available to show North Idaho and South Idaho separately, these areas differ in types of wheat grown. Wheat, the major grain produced in the Northwestern States, is usually distinguished by type. North Idaho, Washington, and Oregon produce white winter wheat primarily with a lesser amount of white spring wheat. In Montana, South Idaho, and Wyoming, the red wheats prevail. Barley ranks second to wheat in volume produced in all five States. In 1962, wheat accounted for 53 percent of total grain production, barley accounted for 33 percent, oats accounted for 9 percent, and other grains accounted for the remaining 5 percent.

Grain production in the five Northwestern States appears to be moving toward greater specialization in wheat rather than toward greater diversification. Production of other grains, including rye, flaxseed, corn, and durum, has declined appreciably in States other than Oregon and Washington (12, 15).^{2/}

^{2/} Numbers in parenthesis indicate references (page 48).

In 1956, other grains accounted for over 17 percent of all grain produced in Montana but declined to less than 3 percent in 1961 and about 6 percent in 1962. Durum production declined most notably, dropping from 18.1 million bushels in 1956 to 1.4 million bushels in 1961, although there was an increase to 7 million bushels in 1962. Corn and flaxseed also decreased considerably. Washington's 1962 production of other grains increased slightly over 1956 but was lower than any of the intermediate years, except 1957.

The most noticeable change took place in the production of the winter wheat varieties. Montana, Oregon, and Washington showed significant relative increases, while Idaho and Wyoming registered declines. The relative increase in winter wheat production on the national level was less than that for the five Northwestern States.

As a percentage of all grain, barley production increased in the five Northwestern States. It accounted for 33 percent of total production in 1962 compared to 26 percent in 1956. The 1962 barley production, however, reached a high for the 7-year period.

The Northwestern States are producing increasing surpluses of wheat and barley and are becoming more dependent upon transportation to remove these surplus quantities and provide needed quantities of deficit grains.

PART I: GRAIN TRANSPORTATION FROM COUNTRY ELEVATORS

GRAIN STORAGE IN THE FIVE NORTHWESTERN STATES

Total country elevator storage capacity in the five Northwestern States in 1962 was 236 million bushels. Washington and North Idaho have the largest storage capacity with a combined total of over 133 million bushels, or 56 percent of the total. The Pacific Northwest, including Washington, North Idaho, and Oregon, accounts for 174 million bushels capacity, or almost 73 percent of total storage for the five States. Montana accounts for about 17 percent; South Idaho, for 8 percent; and Wyoming, for 2 percent. The country elevators included in the sample accounted for 18.9 percent of total storage.

In July 1959, there were 214.9 million bushels of grain stored on and off farms in the five States included in this study. This volume, the largest in storage on July 1 during the period 1958 through 1961, has decreased each year since 1959. The decline occurred predominantly in off-farm storage: 162.6 million bushels in July 1959 and 106.9 million bushels in July 1961. Total wheat in storage declined from 135.8 million bushels to 112.1 million bushels during the same time (13).

Looking at the States individually, total grain stored in Idaho declined 34 percent from 1959 to 1961; in Oregon, 43 percent; and in Washington, 37 percent; while in Wyoming the total dropped only slightly--7 percent. Montana's wheat stores decreased from 1959 to 1960 but increased again by 1961. The total decrease in stored wheat was about 4 percent, but barley and oats also declined so that the total volume of grain stored in Montana declined about 11 percent in the 3-year period.

FACILITIES OF COUNTRY ELEVATORS FOR RECEIVING AND SHIPPING GRAIN

Buying Radius of Country Elevators

The first handler for grain after the producer is the country elevator. Grain is usually received at the country elevator in trucks. The exception might be the rail-delivered feed grain purchased by the country elevator operator for local users.

Inquiry was made of the country elevator operators to determine the approximate radiuses of their local buying areas for grain. The local buying area includes the farming area surrounding, and usually serviced by, the country elevator for both purchases and sales, although the area may be served by several local elevators. From responses of the elevator operators, an average distance of 18.2 miles was determined for the Northwestern States and ranged from 11.4 miles in Washington-North Idaho to 33.2 miles in Wyoming. Of the 184 operators, 87 frequently or occasionally received grain by truck from origins beyond their normal buying radius. In most instances, however, the distance from the origins was less than 100 miles.

In Montana, 79 percent of the elevator operators reported occasional receipts of grain from outside their normal buying radius. The sparsity of country elevators in some areas of Montana would account for the wider areas served. For instance, the eastern counties of Montana average about 7 country elevators each; while in eastern Washington, the average is over 30 elevators per county. The overall average for Montana counties is 8.1 elevators per county (for those counties having elevators) compared to 14.5 per county in Washington.

Country Elevator Facilities for Shipping Grain

Truckloading Facilities

Country elevator operators were asked to state the types of semitrailers that could be loaded at their elevators. Of 186 replying, 170, or 91 percent, could load open-top semitrailers while 16 elevators, or 9 percent, could not. One hundred could load closed-van semitrailers. No inquiry was made as to whether the elevators that could load out trucks had special loading equipment. In some cases, the same loading spouts were probably used for both rail cars and trucks; in other cases, separate truckloading spouts were used for loading closed-top semitrailers.

Elevators in Oregon and Washington-North Idaho were not as well equipped to load closed-van semitrailers as those located in South Idaho, Montana, and Wyoming. About 46 percent of the elevators in the Pacific Northwest were equipped to load closed-van semitrailers, while 61 percent of the elevators in the remaining States could load out closed-van semitrailers.

In the Pacific Northwest, there is less emphasis upon long-distance truck hauls. There is also a difference in the type of trucker used to transport grain. Most grain shipped in trucks from Washington-North Idaho is transported in common or contract and exempt for-hire motortrucks. In Oregon, most trucked grain is transported in elevator-owned trucks. Many of the regulated truckers

operating in the Pacific Northwest are contract lumber haulers and transport grain as a backhaul, while many of the exempt for-hire truckers are grain haulers. Most of these trucks are of open-top construction.

In Montana, South Idaho, and Wyoming, the bulk of the trucked grain is moved in common or contract, exempt for-hire, and private motortrucks. Many of these truckers transport general merchandise, produce, hardware, and grocery products into these States using closed-van semitrailers and transport grain as a backhaul. Thus, the type of semitrailers available for loading dictate to some extent the types of loading facilities at the country elevators.

Facilities for Handling Rail Cars

According to 185 country elevator operators in the Northwestern States, an average of five rail cars per switching can be placed on the elevator sidings. Country elevator operators were asked to state the maximum number of rail cars that could be loaded in a 10-hour work day with regularly scheduled switching service. In South Idaho, there was a range from 0 to 15; in Montana, from 0 to 18; in Oregon, from 0 to 19; in Washington-North Idaho, from 0 to 15; and in Wyoming, from 1 to 10. The 0 cars do not indicate that the elevators do not load rail cars. In some instances, the railroads did not provide daily switching service, and the elevator would not be able to load out a rail car every day.

Operators also reported the average number of rail cars loaded from their elevator per week, by quarter, for the crop year 1960-61. For the first quarter, July through September, they loaded an average of 3.8 cars per week. Country elevators in South Idaho, Montana, and Wyoming shipped more carlots of grain on the average during this period than any other quarter. This results from grain harvest in these States in August and September. For country elevators in Oregon and Washington-North Idaho, the average number of cars shipped per week during the first quarter was less than the number shipped in both the second and third quarters.

During the second quarter, October through December, the region averaged loading out 5.4 rail cars per week. This period covers the peak shipping season for grain from the Pacific Northwest and shows the highest average weekly carloadings. However, this average does not reflect true carloadings for all the Northwestern States. Oregon and Washington-North Idaho, as opposed to Montana, South Idaho, and Wyoming, have larger country elevator storage capacity. The country elevators in Oregon and Washington-North Idaho can, therefore, hold grain for longer periods of time before shipping. They are not pressed to move the grain immediately in order to make room for additional volume.

LOCAL GRAIN SALES FROM COUNTRY ELEVATORS

Local grain sales from country elevators take care of the needs of the local clientele. The operators handle grain for seed and feed purposes and occasionally operate as feed dealers. Sales to other processors located in or near the immediate community of the country elevator are included in local sales.

The elevator operators sold locally a total of 25.7 million bushels of grain during the 1960-61 crop year. Farmers purchased about two-thirds of this amount. Barley and oats accounted for most of the sales to both farmers and processors, amounting to 81 percent of total sales to farmers and 94 percent of sales to local processors. Wheat, both winter and spring, accounted for 13 percent of sales to farmers; and other grains accounted for the remaining 6 percent. Wheat accounted for 5 percent of total sales to processors, and other grains accounted for 1 percent. Other than for seed, oats and barley were probably used for feed. Country elevators in Montana, which is the major beef producer among the Northwestern States (12), sold the largest volume of grain to farmers, accounting for 43 percent of the total for the Northwestern States. Most of this volume was feed grains.

Local sales in Washington-North Idaho were made largely to processors. Their purchases accounted for 46 percent of total local sales to all processors from country elevators, chiefly oats and barley, while processors in Oregon purchased 29 percent of total local sales to all processors. The Pacific Northwest (Oregon, Washington-North Idaho) has extensive feeding areas for dairy cows, cattle, hogs, and poultry; and there is a large market for feeds, particularly in the western areas of Oregon and Washington (12). These feeding operations provide a considerable demand for processed feeds.

GRAIN SHIPMENTS FROM COUNTRY ELEVATORS

Country elevator operators sampled in the five Northwestern States reported the volume of grain shipped during the crop years 1958-59, 1959-60, and 1960-61. This data was requested by type of grain and mode of transport and by disposition, that is, Government and nongovernment grain. Government grain is owned by the Commodity Credit Corporation and is sometimes referred to as CCC grain. Nongovernment grain is bought and sold on the open market and proceeds through the normal buying and selling channels. It is often referred to as "free" grain. The data were expanded to provide an indication of the volume of grain shipped from all country elevators in the Northwestern States.

Total shipments from country elevators amounted to 293 million bushels of grain in 1958-59, 301 million in 1959-60, and 291 million bushels in 1960-61. For the 3-year period, total shipments were fairly constant, although there was some shift in type of carrier used for transporting grain. From 1958-59 through 1960-61, truck shipments increased 13 percent. They increased from 26 percent of total shipments in 1958-59 to 30 percent of total shipments in 1960-61. Rail shipments of grain decreased 5.6 percent--from 216 million bushels in 1958-59 to 204 million in 1960-61.

Grain Shipments From South Idaho

Country elevators in South Idaho averaged shipping about 40.6 million bushels of grain during the years 1958-59 through 1960-61. Red winter wheat accounted for 43 percent of total grain shipments in 1958-59 but declined to 38 percent in 1960-61, while shipments of white spring wheat increased from 42 percent of total grain shipments in 1958-59 to 53 percent in 1960-61. Barley shipments, as a total of all shipments, dropped slightly.

In 1958-59, trucks were used for about 40 percent of all grain shipments from country elevators in South Idaho. By 1960-61, the truck share had decreased to 35 percent, while rail shipments increased 5 percent. Increased rail shipments of red winter wheat and barley accounted for this change. Rail carriers transported 74 percent of the red winter wheat in 1958-59, while trucks hauled the remaining 26 percent. In 1960-61, the share of red winter wheat shipped by rail had increased to 84 percent. The rail share of barley increased from 16 percent to 51 percent during the same 3-year period, while the trucked volume declined by a corresponding amount. Rail shipments of white spring wheat registered a decline for the 3-year period, dropping from 60 percent in 1958-59 to 54 percent in 1960-61.

Commodity Credit Corporation or CCC (Government) shipments amounted to 889,000 bushels of grain in 1958-59, 3,430,000 in 1959-60, and 446,000 bushels in 1960-61. In 1959-60, Commodity Credit Corporation grain shipments amounted to about 8 percent of all grain shipments and was the highest portion during the 3 years. CCC truck shipments totaled 87,000 bushels in 1958-59 and 55,000 in 1959-60; no CCC shipments were reported by truck for 1960-61.

For the crop year 1960-61, country elevator operators of South Idaho reported their nongovernment shipments to four major and two minor marketing areas. The elevator operators in South Idaho shipped 19.2 million bushels, or 52 percent, of nongovernment grain to the Salt Lake-Ogden area. Of this grain, 65 percent was red winter wheat, 28 percent was white spring wheat, and 7 percent was barley. Of total nongovernment shipments to the Salt Lake-Ogden area, 80 percent was shipped by rail.

Country elevator operators in South Idaho shipped about 23 percent of their nongovernment grain shipments to Columbia River ports (Portland, Longview, and Vancouver). Practically all of this grain was white spring wheat. Of these shipments, 85 percent went by truck.

About 16 percent of the nongovernment grain shipments from South Idaho elevators were consigned to Idaho destinations (Boise, Weiser, Twin Falls, and Idaho Falls). Much of this grain (70 percent) was white spring wheat. Red winter wheat accounted for almost 19 percent, barley for the remainder.

About 2.7 million bushels of grain were shipped to California destinations, 50 percent by rail. Wheat shipments accounted for almost 56 percent and barley made up most of the remainder. Other markets received 767,000 bushels of grain, mostly white spring wheat, shipped predominantly by rail.

Grain Shipments From Montana

The volume of grain shipments from country elevators in Montana was highest of the five Northwestern States, averaging about 44 percent of the shipments from all country elevators in the Northwest during the 3-year period. Truck shipments accounted for 16 percent of total grain shipments in 1958-59 and 26 percent in 1960-61. By volume, truck shipments increased from 22 million to 32 million bushels, or 48 percent, during the 3-year period, while rail shipments dropped from 118 million to 95 million bushels, or 20 percent.

In 1958-59, red winter wheat was 48 percent of total grain shipments. It increased to 56 percent of the total by 1960-61. The rail share of red winter wheat dropped from about 77 percent in 1958-59 to 70 percent in 1960-61. Actual rail shipments decreased very little--about 4.5 percent--but truck volume increased 39 percent from 1958-59 through 1960-61.

Red spring wheat accounted for 26 percent of total grain shipments in 1958-59 and 29 percent in 1960-61. Barley, which accounted for almost 25 percent of total shipments in 1958-59, declined to about 14 percent by 1960-61. The rail share of barley shipments decreased from 91 percent in 1958-59 to 67 percent in 1960-61. Other grains produced in Montana, including corn, rye, and flaxseed, accounted for the remaining 1 percent. Although shipments of other grains were comparatively small, truck shipments increased from 3 percent of total volume to 17 percent during the 3-year period.

CCC grain shipments from Montana country elevators declined during the 3-year period, 1958-59 through 1960-61. In 1958-59, CCC shipments were 21 percent of total grain shipments, or 29.3 million bushels. No truck shipments of CCC grain were reported during that year. In 1959-60, CCC shipments--all shipped by rail--declined to 15 percent of total shipments. In 1960-61, about 5 percent of the CCC shipments were made by truck. CCC grain shipments accounted for 8 percent of total grain shipments.

Country elevator operators in Montana shipped almost 111 million bushels of nongovernment grain in 1958-59, 102 million bushels in 1959-60, and 116 million bushels in 1960-61. Truck shipments increased from 20 percent of total nongovernment shipments in 1958-59 to 25 percent in 1959-60 and 27 percent in 1960-61.

Montana has a wide range of markets to which grain is distributed. In the years surveyed, about 30 percent moved westward from Montana into the Pacific Northwest, 32 percent was shipped to in-State points, 3 percent was shipped into South Idaho, Utah, and California, 31 percent was shipped to Minnesota and other North Central States, and 4 percent went to unknown destinations.

In the Pacific Northwest, Spokane received over 11 million bushels of Montana's nongovernment grain, 83 percent by rail. A large portion of the rail volume shipped to Spokane was probably diverted or reconsigned to Portland or Seattle. Direct shipments to Columbia River ports and Puget Sound ports totaled over 9 million bushels. Fifty-four percent of the grain shipped to Columbia River ports went by truck, and 98 percent of shipments to Puget Sound ports moved by rail. Although the country elevator operators reported shipments to Columbia River ports by truck, much of this movement was probably transferred to barge at Pasco-Kennewick. The elevator operators shipped about 1 million bushels of grain direct to Pasco-Kennewick, all by truck.

Some 38 million bushels of grain were shipped to Shelby, Great Falls, Billings, and other points in Montana with about 75 percent moving by rail. However, much of the rail movement to the terminals at Shelby and Great Falls was diverted or reconsigned to other destinations. The country elevator operator did not know the ultimate destination since grain is purchased on-track by terminals, grain brokers, or commission merchants and is shipped from

the country elevator to one of the diversion points. Spokane, Shelby, and Great Falls are diversion points for grain shipments from Montana.

Of eastbound shipments of nongovernment grain from Montana, Minnesota received about 71 percent and the other North Central States received the remainder.^{3/} Forty percent of the grain shipped to Minnesota moved in trucks. Duluth-Superior and Minneapolis-St. Paul are both major markets of first destination for shipments from Montana; and since both have water connections, trucks can be used for shipments into these markets to connect with vessels at Duluth or barges at Minneapolis. Railroads carried 95 percent of the shipments from Montana elevators to the North Central States, other than Minnesota.

California received the largest volume of shipments south from Montana--over 1.5 million bushels. Salt Lake-Ogden received 1.3 million bushels and Idaho received 600,000 bushels of grain. More than 72 percent of the south-bound volume was shipped by truck. According to comments by some of the elevator operators, a portion of the grain shipped to Idaho was reloaded into rail cars and moved to California.

Grain Shipments From Oregon

In Oregon, white winter wheat and barley are produced and shipped in greatest volume, while white spring wheat and oats are marketed to a lesser degree. In 1958-59, white winter wheat accounted for 53 percent of total shipments, barley accounted for 31 percent, white spring wheat accounted for 6 percent, oats were 8 percent, and the other grains accounted for the remaining 2 percent. In 1960-61, shipments of white winter wheat increased and shipments of barley decreased.

Country elevator operators in Oregon shipped a higher percentage of grain by truck than the other origin areas in the Northwest. Of total grain shipments in 1958-59, 52 percent moved by truck, but in 1959-60, they decreased to 46 percent and remained at about the same portion in 1960-61. Shipments of white winter wheat and barley shifted noticeably from truck to rail. Of the white winter wheat, 60 percent was shipped by truck in 1958-59 but only 55 percent in 1959-60 and 50 percent in 1960-61. In 1958-59, 30 percent of the barley was shipped by truck. In 1959-60, the truck share decreased to 22 percent and in 1960-61 to 19 percent.

Shipments of CCC grain from country elevators in Oregon showed an increase in volume for the 3 years. Shipments increased from 3.6 million bushels in 1958-59 to 5.5 million bushels in 1960-61. Truck shipments for the period were somewhat erratic in the volume moved. They decreased from 21 percent of total CCC shipments in 1958-59 to 9 percent in 1960-61. Most of the CCC grain shipped from Oregon country elevators was white winter wheat and barley.

Nongovernment grain shipments were mostly white winter wheat and barley. White winter wheat shipments increased from 17 million bushels in 1958-59 to

^{3/} Minnesota was selected as a separate destination since a considerable portion of the shipments from Montana terminate at Duluth and Minneapolis. The North Central States include North Dakota, South Dakota, Nebraska, Kansas, Wisconsin, Iowa, Missouri, Illinois, Indiana, Ohio, and Michigan.

20.5 million bushels in 1960-61--over 20 percent. By volume, barley shipments decreased from 10.1 million bushels in 1958-59 to 5.9 million bushels in 1960-61, or 42 percent. Truck shipments accounted for 55 percent of total nongovernment grain shipments in 1958-59, 50 percent in 1959-60, and 52 percent in 1960-61. Wheat and oats were shipped predominantly in trucks, and barley moved mainly by rail car.

Much of the grain trucked from country elevators in Oregon moved to river transfer facilities for continued movement to lower Columbia River ports by barge. Columbia River ports and Pasco-Kennewick received the bulk of the trucked grain. About 8 percent of the shipments went to destinations in Oregon and Washington that have local milling and feeding operations. About 83 percent of this volume was shipped by truck. Elevator operators also reported shipping some 5 percent--1.6 million bushels of grain, over half, by rail--to California. Most of the white winter wheat eventually terminated in the Portland area. Sixty-five percent was shipped directly. The remainder went to Pasco-Kennewick and was most likely reshipped in barges down the Columbia River. Of the 7.1 million bushels of white winter wheat that moved to Pasco-Kennewick, 5.7 million was shipped by truck, probably for transshipment by barge to Portland terminals.

Grain Shipments From Washington-North Idaho

In the five Northwestern States, Washington-North Idaho rank second in production and total shipments of grain. In 1958-59, country elevator operators from this area shipped a total of 69.2 million bushels of grain, which increased to 89.5 million bushels in 1959-60 and decreased to 82.7 million in 1960-61. Trucks transported 28 percent of the shipments in 1958-59, 23 percent in 1959-60, and 27 percent in 1960-61.

White winter wheat accounted for 57 percent of the grain shipments in 1958-59, 61 percent in 1959-60, and 63 percent in 1960-61. Barley amounted to 28 percent, 27 percent, and 25 percent of total grain shipments, respectively, for the 3 years.

The portion of CCC shipments ranged from a high of 20 percent of total shipments in 1958-59 to a low of 11 percent in 1960-61. White winter wheat and barley were shipped predominantly for the CCC. Oats, white spring wheat, red winter wheat, and other grains together averaged about 11 percent of total CCC shipments. Over 12 percent of CCC grain shipments from Washington-North Idaho country elevators went by truck in 1958-59, 5 percent in 1959-60, and 6 percent in 1960-61.

Nongovernment grain shipments from country elevators in Washington-North Idaho increased from 55.7 million bushels in 1958-59 to 72.8 million in 1959-60 and to 73.8 million in 1960-61, an increase of almost 33 percent during the 3 years. Shipments of white winter wheat increased from 33.1 million bushels in 1958-59 to 48.5 million bushels in 1960-61, an increase of 15.4 million bushels. Truck shipments of white winter wheat increased by 32 percent but not in proportion to total shipments, which increased 47 percent.

In 1958-59, country elevator operators shipped 17.8 million bushels of nongovernment grain by truck, 19.7 million bushels in 1959-60, and 21.7 million

bushels in 1960-61, an increase of 22 percent. Rail shipments increased from 37.9 million bushels of grain in 1958-59 to 53.1 million in 1959-60 and decreased slightly to 52.1 million bushels in 1960-61. The total increase in rail shipments from 1958-59 to 1960-61 was 38 percent.

Grain shipments to markets of first destination in 1960-61 moved primarily to markets in the Pacific Northwest. Columbia River ports received the most shipments, 22.2 million bushels, while Pasco-Kennewick received 18.4 million bushels. Puget Sound ports received 15.1 million bushels, and Spokane, 11 million bushels. All other markets together received about 1.2 million bushels of grain. Of total shipments, 71 percent went by rail and 29 percent by truck.

Grain Shipments From Wyoming

Grain shipments from Wyoming amounted to 6.9 million bushels in 1958-59, 5.7 million in 1959-60, and 6.5 million in 1960-61. The producing area in Wyoming is confined to about four surplus grain producing counties in the southeast corner of the State. Red winter wheat accounts for the bulk of the shipments from Wyoming and is moved mainly by rail. However, shipments of grain by truck have increased from 4 percent of total shipments in 1958-59 to 25 percent in 1960-61.

Most of the grain shipped from Wyoming country elevators was nongovernment grain. Commodity Credit Corporation grain accounted for less than 5 percent. Nongovernment grain moved mainly to North Central terminal markets in 1960-61. It accounted for over 84 percent of shipments to all destinations. Of the total, 26 percent moved in trucks. California received 500,000 bushels, or about 9 percent, of total nongovernment grain shipments. Colorado and other unknown markets received the remainder.

TRUCK SHIPMENTS NOT ELEVATED AT THE COUNTRY ELEVATOR

Country elevator operators in the five Northwestern States shipped 8.3 million bushels of nongovernment grain direct from farm storage by truck. The elevator operator purchased grain in farm storage and arranged for a trucker to pick up the grain at the farm for delivery to a terminal or other buyer. Usually, trucks transporting grain in this manner will stop at the negotiating elevator for weighing, grading, and billing before going to their destination.

This method of grain handling was not very significant in four of the five areas. Elevator operators in South Idaho, Montana, Oregon, and Wyoming as a group shipped about 5 percent of their trucked volume in this manner. However, the elevator operators in Washington-North Idaho shipped almost 24 percent of their total trucked grain direct from farms. Of the grain shipped direct from Washington-North Idaho farms, about 74 percent was wheat, 23 percent was barley, and the remainder was oats and other grains.

The relatively large percentage of trucked grain shipments direct from farms in Washington-North Idaho occurs because of the proximity of the elevators to the river transfer facilities at the Pasco-Kennewick area. A large portion of the truck shipments from Washington-North Idaho elevators go to the river transfer points and make connections with barge carriers for continued movement

to Portland and vicinity. Direct truck shipments from farms to river points cut the country elevator operator's handling costs and eliminate the farmer's task of delivering the grain to the country elevator.

GRAIN SHIPMENTS THAT BYPASS COUNTRY ELEVATORS

There has been increasing interest among members of the grain trade as to the extent that truck shipments of grain from farms are bypassing the country elevators. (Bypassing refers to shipments made directly from farms to grain buyers other than local country elevators.) About 42 percent of the country elevator operators replying in the five Northwestern States believed a significant volume of grain was bypassing their elevator or other elevators in their local areas.

In South Idaho and Montana, 54 percent stated that the volume of grain bypassing their area was significant. The country elevator operators indicated that they were aware of such activity but could give no estimate of the volume of grain that might be moving in this manner. The increasing activity of itinerant merchant truckers was the most frequently reported cause for increasing grain shipments direct from farms.

In the Pacific Northwest, a significant amount of grain moving direct from farms to terminals, subterminals, or processors was reported by about one-third of the elevator operators. In this area also, increased activity by itinerant merchant truckers was stated as the major cause. Movement direct from farms to river terminals was reported several times as an example of increased bypassing. However, this bypassing movement should not be confused with unelevated grain shipments made by country elevator operators. In the discussion of truck shipments from farms to river terminals that were arranged by the country elevator operators (page 12), bypassing does not occur since the sale of grain is made with the elevator operator. Bypassing refers to grain sold to a merchant other than the local country dealers.

Data compiled in the survey of grain transportation in the North Central States showed a predominance of feed grain moving into the Western States of which 57 percent was transported in trucks (4). The North Central Survey also showed that the predominant type of motor carrier transporting feed grains was the itinerant merchant trucker. This indicates that itinerant merchant truckers from the North Central States are probably operating in the Northwest area, although they are used for only about 1 percent of the truck shipments from country elevators.

Further evidence of bypassing was provided by the replies furnished by terminal elevator operators. All terminal elevator operators combined reported receiving 30 percent of their trucked grain receipts from farmers. Terminals located in both the Northern Interior and the Southern Interior, which include Montana and South Idaho where bypassing was reported to be most significant, reported that about 34 percent of their truck receipts came from farmers. This, along with data from the North Central Study, tends to substantiate the belief among country elevator operators that itinerant merchant truckers are buying a significant volume of grain direct from farmers for movement to Northwestern States terminals or to use as a backhaul into the North Central States.

TYPES OF TRUCKERS USED FOR GRAIN SHIPMENTS FROM COUNTRY ELEVATORS

Definition of Various Types of Truckers

The increased use of trucks for transporting grain from country elevators has developed interest concerning the types of truckers being used to transport grain. Country elevator operators in the five Northwestern States reported that all types of truckers are used to some extent to transport grain. Following are the types of truckers:

1. Common or contract motor carriers are for-hire trucking firms having operating authority from the Interstate Commerce Commission. Motor common carriers receive a certificate of public convenience and necessity to operate over regular or irregular routes and to transport specified commodities in interstate commerce. Contract carriers are issued permits to operate between specified points hauling specified commodities. Both types transport general commodity freight at prescribed rates subject to the Interstate Commerce Act. This group includes most of the interstate trucking companies and truck fleet operators.
2. Itinerant merchant truckers purchase an exempt commodity and transport it to market for resale. The difference between the buying and selling price, if any, is their profit and, in effect, their charge for the haul.
3. Exempt for-hire truckers are for-hire motor carriers operating in interstate commerce and not having operating authority issued by the Interstate Commerce Commission. Their operations are similar to the common or contract carriers, although they are not limited to specified routes, and their rates are not subject to approval by the Interstate Commerce Commission. They are limited to transporting exempt agricultural commodities, except under trip-leasing agreements (1).
4. Private carriers include trucks operated by firms not primarily in the trucking business. This category includes trucks operated by grocery firms, merchandising firms, lumber and steel firms, and others who operate trucks for their own convenience. These trucks transport exempt agricultural products on an otherwise empty haul to help defray expenses.
5. Elevator-owned or leased trucks operated either by the shipping or receiving elevator were included in this group. Although these trucks are private in nature, they are used for the elevator operators' convenience. There is no actual freight charge for transporting the grain.

All the above listed motor carriers are exempt from economic regulation by the Interstate Commerce Commission when transporting grain in interstate commerce and are not subject to prescribed rates or routes (1, 14). The common and contract carriers and private carriers transport grain as a backhaul to a specific destination, usually the larger terminal markets (16). For this

reason they are less flexible than the itinerant merchant or the exempt for-hire motor carrier.

Grain Shipments by Type of Motor Carrier

Country elevator operators in the five Northwestern States estimated the percentage of the 1960-61 truck shipments transported by the various types of truckers. Their estimates account for 75 percent of total truck shipments. In a few instances, the elevator operator did not have sufficient knowledge to estimate his total truck volume by type of motor carrier and furnished partial estimates or made no estimates. The percentage estimates were applied to the reported truck volume in order to provide some knowledge of the volume of grain transported by the various trucker types.

Common or contract carriers were used most often in Montana, Washington-North Idaho, and Wyoming. They transported about 40 percent of combined truck shipments from country elevators. Common or contract motor carriers were used predominantly for wheat shipments to terminal destinations.

Itinerant merchant truckers were used very little for transporting grain. Elevator operators made about 1 percent of their truck shipments through merchant truckers. These truckers transported mostly feed grains to feedlots. They were used predominantly by elevator operators in Washington-North Idaho and Wyoming. Only 8 country elevator operators out of 172 in the 5 States indicated that their sales to merchant truckers had increased significantly since 1957. The following tabulation enumerates elevator operators reporting increased use of merchant truckers and their comments.

Area	Use of merchant truckers has increased		Comments (if yes)
	Yes	No	
	<u>Number</u>	<u>Number</u>	
South Idaho	1	24	Increase in total truck shipments.
Montana	3	52	More trucks and increased rail freight rates have caused more grain to move by truck.
Oregon	1	20	(No comment.)
Washington-North Idaho	2	60	Cheaper rates; more grain moving to river.
Wyoming	1	8	Bad-quality boxcars and increase in truck shipments.
Total	8	164	

Exempt for-hire truckers hauled about 32 percent of truck shipments from country elevators in the Northwestern States. These truckers transported 17.4

million bushels of grain to terminal elevators, 1.3 million bushels to processors, and 1.5 million to feeders. These movements accounted for 32 percent of all truck shipments to terminals, 20 percent of truck shipments to processors, and 52 percent of truck shipments to feeders. Exempt for-hire truckers were the predominant ones used in South Idaho. They accounted for a considerable portion of the trucked grain shipments from elevators in Montana and Washington-North Idaho.

Private carriers were used for about 16 percent of the truck shipments. They transported mostly wheat to terminals and processors. Country elevator operators in South Idaho shipped about 24 percent of their truck shipments by private carriers, and Montana elevator operators used them for about 25 percent of their truck shipments.

Elevator-owned or leased trucks accounted for approximately 11 percent of total truck shipments, and in Oregon, such trucks hauled 94 percent of all trucked grain. It is very likely that the nearness of the Oregon country elevators to terminals, both at Portland and the upstream river transfer facilities, influenced the use of elevator-owned trucks. Short-haul movement and lack of lengthy backhauls discourage truckers seeking grain loads on a for-hire basis (see page 44).

Terminal markets received the bulk of shipments made by the various types of truckers in all instances except for shipments by itinerant merchant truckers. Of all truck shipments, terminals received over 85 percent, processors received almost 11 percent, and feeders received the remaining 5 percent.

Shifts in Types of Motor Carriers Used for Shipping Grain

Eighteen country elevator operators, or 12 percent of those reporting in South Idaho, Montana, and Washington-North Idaho, indicated that a significant change in the type of motor carrier used for transporting grain had occurred since July 1958. In Montana, almost 20 percent reported a significant change. Seven elevator operators reported increased use of agricultural exempt truckers, two had shifted to their own trucks, and one had shifted from private truckers to regulated for-hire trucks. In Washington-North Idaho, six of seven reporting a shift had changed to common or contract carriers because of better and larger or specialized equipment. Elevator operators in Oregon and Wyoming did not report any change in the types of motor carriers used for shipping grain.

THE USE OF TRUCK BROKERS BY COUNTRY ELEVATOR OPERATORS

Truck brokers perform a service for both the trucker and the shipper. Their importance has risen primarily because of the increase in the number of truck operators that cater only to shippers of exempt agricultural commodities. Many of the truckers operating as exempt for-hire carriers service several States and have offices in only a few, if any, of them. Truck brokers serve as the office and the link between shippers and truckers (6).

Country elevator operators in the five Northwestern States estimated the volume of grain they shipped in trucks obtained through truck brokers. In 1960-61, 6 percent of the operators shipped a total of 2.4 million bushels, or 3 percent, of nongovernment grain in trucks obtained from truck brokers. Of

the three elevator operators in South Idaho that reported using truck brokers, all stated that their use of truck brokers has remained about the same since July 1958; one of the two elevator operators from Montana reported a decrease in the use of truck brokers, as the two in Oregon did. One elevator operator located in Washington-North Idaho had increased his use of truck brokers for obtaining trucks since July 1958.

Two reasons were given for not using truck brokers to obtain trucks. Several elevator operators stated that, for their truck shipments, they dealt with one or two trucking companies that called whenever their trucks were in the area. Usually these truckers would take all the grain available for truck movement. Other elevator operators made sales through grain brokers who arranged for truck transportation.

CHANGES IN DISTRIBUTION PATTERNS FOR GRAIN SHIPMENTS

Of 178 country elevator operators in the Northwest, 34--or 19 percent--indicated that a significant change had occurred in their distribution pattern for grain since July 1958. In Montana, 13 elevator operators out of 55, or 24 percent, reported that a significant shift had occurred in the distribution of grain. About 54 percent of those in Oregon indicated a change, while 10 percent in Washington-North Idaho reported a change. However, of the 34 affirmative responses in the 3 areas, only 7 indicated that the distribution of grain had changed or had been affected because of transportation facilities.

Three operators in Montana were handling less volume because of increased truck movement direct from farms. In Oregon, one operator reported more rail and fewer truck shipments to California. Increased rail shipments probably have resulted from lower rail rates for grain and grain products from the Pacific Northwest to California. Rail rates between these areas were first lowered in early 1960. In Washington-North Idaho, three elevator operators increased shipments to river terminals.

Many operators indicating changes in distribution explained that the market itself had changed. Almost three-fourths of the replying Montana operators were shipping greater quantities of grain to destinations in the Northwest. This suggests that increased shipments of grain are moving west to North Coast terminals as a result of the reduced rates since 1960.

Seventeen operators in Oregon and Washington-North Idaho shipped larger amounts of barley and oats to local feeders, probably as a result of increases in livestock numbers. Cattle on farms in Oregon and Washington increased about 282,000 head, or 12 percent, from the 1951-60 average to 1962, while cattle on feed in Oregon and Washington increased 85 percent for the same period (12).

REASONS FOR USING THE VARIOUS MODES OF TRANSPORT

Historically, rail carriers have transported grain from country elevators to terminals, processors, and ports of export. This method of transport prevailed during the late 19th century and early 20th century. By 1935, motor carriers had become sufficiently competitive to warrant regulation similar to that of the railroads. However, agricultural products were exempted from economic regulation when transported interstate by truck. Motor carriers

transporting the exempted agricultural commodities did not offer any significant competition to the railroads until after World War II. Since then, trucks have hauled increasingly larger shares of grain.

In 1940, Part III of the Interstate Commerce Act was passed to regulate inland waterway carriers. They were exempted from economic regulation when transporting not more than three bulk commodities in a single tow, provided that such commodities were hauled in bulk prior to June 1, 1939 (14). Grain is transported in bulk in barges under this exemption.

As a result of increased competition among the carriers, the importance of rail service, equipment, and rates has increased. Truck and barge carriers are competing with the railroads individually and jointly for the grain traffic among the country elevators and terminal elevators, processors, and feeders.

Rates are a major factor for successful carrier competition. They reflect not only the cost of moving grain from one point to another but the various services available to grain merchandisers. Railroads have generally charged higher grain rates than either truck or barge, but they include certain transit privileges for the grain shippers. Flour millers depend upon milling-in-transit, and rail rates permit flour millers to receive grain from a specific origin and ship their flour at the balance of the through rate to a specific destination. Other transit privileges provide for storing, cleaning, and mixing or blending grain while in transit.

Rail rates became regulated with the enactment of the Interstate Commerce Act in 1887. Various supplementary acts and amendments have strengthened the original act. Provisions of the Act require railroads to publish schedules showing charges for transportation between different points, both on their own routes and on the routes of other rail and water carriers when joint rates have been established (14). A railroad generally cannot change the established rates except by giving 30 days notice to the Interstate Commerce Commission and to the public.^{4/} The railroads must show the proposed changes and the time the changes will go into effect.

Such regulations tended to stabilize rail rates. The price spread for grain between country and terminal markets became relatively stable reflecting the rail freight rate between the country origins and terminal destinations.

Most of the freight charges paid truckers are negotiated, often at the time of loading. Barge carriers also transport grain at negotiated rates as well as published rates. Truckers and barge operators usually offer no service other than the movement of grain from one origin to one destination, and their cheaper rates reflect the minimum service. However, the increased acceptance of limited transit rail rates and increased use of trucks and barges indicate that this minimum service is becoming more acceptable for grain shipments.

The increasing importance of truck and barge carriers is causing changes in the grain marketing methods that were historically based on rail carrier rates (3, 16). Increased competition among carriers has increased competition

^{4/} The Interstate Commerce Commission may alter this provision when good cause is shown (14).

among country elevator operators. They now must compete for the producer's grain and evaluate more alternative markets when selling their grain. Since country elevator operators base their buying and selling prices on terminal market quotations, including railroad transportation costs, truck rates, when lower than rail rates, increase the margin within which country elevator operators negotiate. As a result, they are able to offer either a higher price for the producer's grain or to accept a lower price from the buyer.

Efforts by the railroads to compete with the lower-cost truck and barge carriers have resulted in rail rate reductions. Initially, the railroads attempted to reduce rates generally, including the charges for extra services as well. These rate reductions were first made in areas where trucks and barges offered the strongest competition for grain traffic (3). In the Pacific Northwest, rail rate reductions which became effective before mid-1958, were designed specifically to be competitive with highway and water carriers. These reduced rail rates, with limited transit and reconsignment privileges, applied to origins located in eastern Washington and Oregon and North Idaho (7). Subsequent rail rate reductions extended the competitive rate area into western and central Montana (8).

ADVANTAGES AND DISADVANTAGES OF SHIPPING BY DIFFERENT CARRIERS

The country elevator operators, in giving their opinions of various shipping means, were in no way influenced. The questionnaire contained no suggestive answers. No assumptions were made that an advantage for one carrier was automatically a disadvantage for its competitor.

In only a limited number of questionnaires did an operator indicate that an advantage of one carrier became a disadvantage of another carrier. That is, an advantage of a carrier such as low rates did not necessarily indicate that the rates of the other carrier were higher and disadvantageous, unless the elevator operator stated this.

Advantages and Disadvantages of Shipping Grain by Rail

Advantages

A total of 161 elevator operators or 87 percent of those sampled in the 5 Northwestern States reported advantages for shipping grain by rail carriers.

The advantage reported most often for shipping grain by rail car, "Faster, easier, more convenient to load," was stated by all elevator operators in Washington, two-thirds of those in Oregon, 54 percent in South Idaho, 50 percent in Montana, and 38 percent in Wyoming. The advantage, "Rail cars hold larger volume of grain," was reported 43 times, or by 27 percent of the operators in the Northwest. Six of eight operators in Wyoming reported this advantage. On the average, standard rail boxcars hold about three times as much as a truck. Much of the work required to load out grain is in the initial stages of preparation, and preparing and loading one rail car often required less work than loading three trucks (5).

"Railroad service is dependable, reliable" was reported by 24 percent of the elevator operators in the Northwestern States. Railroad service generally

includes scheduled switching, insurance, and provisions for claims in the event of losses and special privileges such as inspection, diversion, and transit billing. In addition, railroads are financially reliable. These services are important to country elevator operators, since their operations can be oriented more easily to railroad schedules, rates, and claim services. Other advantages related to rail service were listed as: Rail cars are usually available, railroads provide transit billing, railroads provide diversion and reconsignment, shippers or receivers can request recheck of weights and grades, and less loss in transit.

Several of the advantages listed were interrelated. For instance, the advantage, "elevator better equipped to load rail cars," was reported by 20 percent of the responding elevators and is somewhat related to the first advantage. Because the elevators are better equipped to handle rail cars, they are more easily loaded at the elevators.

Country elevator operators in western Montana, Oregon, and Washington-North Idaho frequently reported that rail rates to West Coast destinations were competitive with truck and truck-barge rates for similar distances and were more stable. Rail rate reductions, which have occurred in many areas of the Northwestern States, are--for many hauls--competitive with truck and truck-barge rates.

Disadvantages

Of the elevators sampled, 65 percent reported disadvantages for using rail carriers to transport grain. The disadvantage reported most often was that rail rates are higher. This was reported by 57 elevator operators and, as a percentage of elevators reporting, was most significant in South Idaho and Montana where 39 of those reporting were located. The disadvantage, "rail cars not always available," was reported 52 times, predominantly by Montana and Washington-North Idaho elevator operators. Greater loss and increased claims were also significant disadvantages for shipping grain by rail according to the elevator operators in Montana and Washington-North Idaho.

Advantages and Disadvantages of Shipping Grain by Truck

Advantages

A total of 117 country elevator operators, or 63 percent of those in the sample, reported advantages for shipping grain by truck. The advantage reported most often was that trucks charge lower rates. As a percentage of total elevator operators reporting, this advantage was stated most often in South Idaho, Montana, and Washington-North Idaho. "Trucks provide a wider range of markets" and "Faster delivery and returns on shipments" were reported 29 times each and were second in frequency of reportings.

Disadvantages

Disadvantages of using trucks were reported by 69 percent of the country elevators in the sample. The disadvantage reported most often was that trucks have no scheduled arrivals for loading. This particular disadvantage was prominent among the elevator operators reporting from Washington-North Idaho.

They stated that trucks arrived at all hours of the day and night and had to be loaded immediately upon arrival. Other disadvantages reported frequently included: "Trucks are inconvenient to load and more costly to load than rail cars;" "Trucks are not always available;" "It is more difficult to collect claims on losses or shortages;" and "Trucks are not able to handle large-volume shipments."

Relationship of Advantages and Disadvantages of Shipping Grain by Rail and Truck

Elevator operators usually felt that railroads offered more convenience in loading than trucks. Rail cars were spotted at the elevator, and the operator was free to load the car during his spare time. The railroads provide free time of 48 hours before demurrage charges begin. In contrast, truckers insist upon being loaded immediately upon arrival. They say that idle time costs them about \$5 to \$10 per hour, and with their low rate they must keep moving as much of the time as possible (3).

Country elevator operators also stated that truckers arrive at all hours. Even when appointments for arrivals were made the truckers would often be several hours early or late. This was particularly inconvenient for elevator operators in Washington-North Idaho, where many elevators are not manned full-time. When a trucker does not show up on time, the elevator attendant has to be paid for the hours spent in waiting. The operators stated that these added costs often cancelled out any saving realized from the lower truck rates.

The most frequently reported advantage in shipping by truck was lower rates; the most frequently reported disadvantage in shipping by rail was high rates. These advantages and disadvantages were reported predominantly in South Idaho and Montana, where the railroads have made less effort to meet the truck rates. The railroads have made reductions in Montana for movement to Pacific ports, but trucks are more competitive for the eastbound traffic.

Service Factors Influencing the Use of a Particular Mode of Transport

Service includes factors such as the condition of equipment that is provided to shippers and the method and efficiency with which the carrier serves its customers. Of 176 country elevator operators, 38, or 22 percent, stated that service factors of a particular mode of transport had influenced them to increase the use of that mode. Responses of the operators indicated a shift to trucks.

In Oregon, almost half the elevator operators had shifted to truck transportation because of better service. The primary reason was that rail cars are not readily available during peak shipping seasons, as reported by eight elevator operators. A second reason is that grain can be shipped by truck to transfer facilities on the Columbia River for continued movement by barge.

Twenty-two percent of the reporting operators in Montana and 17 percent in Washington-North Idaho changed modes of transport because of service factors. Their reasons were basically the same as those in Oregon--the lack of rail equipment during peak shipping seasons. Several elevator operators in the five States also stated that truck service was better or that they received

poorer service from railroads. Some elevator operators in Oregon and Washington-North Idaho indicated a change from truck to rail carriers because of easier handling and loading of rail cars, less loss, and the acceptability of rail cars by grain receivers.

Elevator operators had not shifted entirely to truck but used trucks as a substitute when rail cars were not available to handle the heavy inflow of grain during harvest. As grain harvesting begins, the greater demand for rail cars often creates boxcar shortages. As the harvest season moves on, the shortage is further aggravated because of the accumulation at terminal elevators and storage points when rail cars cannot be emptied as rapidly as they are received. Although the railroads attempt to redistribute grain cars as soon as possible, rail cars tend to pile up near receiving points. At such times, trucks perform a valuable service for the elevator operator by helping to relieve congestion at the country elevator.

Two of nine elevator operators in Wyoming reported that they had shifted from rail to truck because of service factors: The poor quality of the rail cars and the poor service in getting claims settled for shortages in transit.

CHANGES IN FACILITIES OR MARKETING PRACTICES BECAUSE OF INCREASED USE OF TRUCKS AND BARGES

Of 182 country elevator operators replying, 29 percent stated that they had made changes in their loading facilities or marketing practices because of increased use of trucks and barges. In the Pacific Northwest, about 33 percent of the operators reported changes. The major change in facilities was to add truck-loading spouts. Construction of off-rail facilities was also reported.

In the remaining States--South Idaho, Montana, and Wyoming--about 26 percent of the operators reported changes in elevator facilities. The addition of truck-loading facilities was the most significant change.

In the Pacific Northwest, proportionately more elevator operators appeared to be making changes in their facilities. The proximity of these elevators to the major coastal ports and the river terminals makes truck utilization more convenient for the movement of grain. The coastal ports on the Columbia River and Puget Sound are relatively near the grain production areas in the Pacific Northwest. They provide backhaul movement for trucks. In many cases, grain loaded into a truck at the country elevator is delivered in less than 1 day's time.

On the other hand, fewer elevators in Montana, South Idaho, and Wyoming have added additional truck-loading facilities. As a comparison, truck hauls in the Pacific Northwest range from about 150 to 400 miles, whereas truck shipments from Montana and South Idaho range from 400 to 900 miles or more.

Most of the changes made were in the realm of physical handling facilities for grain. However, a few elevator operators changed their marketing practices because of increased use of trucks or barges. One operator in Oregon was selling more grain to exporters who could receive grain by barge. In Washington-North Idaho, an elevator operator reduced his handling and storage charges because of lower truck rates. In order to remain competitive and continue to

ship by rail, this elevator operator had to absorb the difference between the rail and truck rates.

PART II: TERMINAL ELEVATORS AND PROCESSORS

FUNCTIONS OF TERMINAL ELEVATORS AND PROCESSORS IN GRAIN MARKETING

Terminal elevators receive most of their grain from country elevators. Basically, the terminal elevators may be grouped into three categories. The first includes terminals that operate as gathering points for grain moving from country elevators to the major terminal markets. The elevators in this category may be either subterminals or terminals. They are usually located at interior cities and rail centers. They consolidate shipments, reconsign and divert shipments, or resell grain purchased from country elevators. These terminal or subterminal elevators usually service a localized area of country elevators, although their territory may cover more than one State. Such terminals in this study are located at Great Falls and Shelby, Mont., Spokane and Pasco-Kennewick, Wash., and Ogden, Utah.

The second category includes the terminal elevators located in the major terminal markets. These elevators are usually located at major port areas, either river or ocean ports. Grain is shipped into these terminal markets from interior terminal elevators and from country elevators. Their function is not limited to grain merchandising; many also operate as grain processors. Within the major terminal markets are storage facilities for a great concentration of grain. From these markets, grain is redistributed as grain and grain products to domestic consuming areas. Elevators at Portland, Oreg., Seattle and Tacoma, Wash., and other port areas are representative of this kind of terminal operation.

The third category of terminal elevators includes those firms that export grain and are located at the major seaports and lakeports. They purchase grain from country elevators, interior terminals, and the major terminal markets. These are located at the ocean ports such as Seattle, Wash., and Portland, Oreg.

There is much overlapping in the three categories among the terminal elevator companies. Many of the larger line elevator companies are engaged in all three phases, but this breakdown describes generally the functions of the terminal elevators in the marketing of grain.^{5/}

Grain processors are found in the three categories of terminal elevators. Most flour is milled at terminals; feed manufacturing, however, is a more localized and smaller operation. Even the large line elevator companies that operate feed manufacturing plants tend to operate their individual plants on a smaller scale than the terminal flour mills. Feed processing plants are smaller; they utilize a smaller volume of grain, serve a local clientele, and

^{5/} Line elevator companies operate several branch units which may include terminal and country elevators and processing mills. They often merchandise grain and grain products in both the domestic and foreign markets.

are found with greater frequency in the predominant stock or poultry-feeding areas.

In the Northwest there are both tidewater and interior terminal elevators. Most of the interior terminal elevators operate as grain terminals and flour mills. Those located at tidewater ports are primarily grain exporters. There are terminals located on the Columbia River at interior ports. In this analysis they are included as interior terminals.

Of the 29 terminal elevators located in the Northwest, 16, or 55 percent, are located at interior points; and 13, or 45 percent, are located at tidewater ports. They have a total of about 95 million bushels of storage capacity--26 million bushels, or 27 percent, at interior elevators and 69 million bushels, or 73 percent, at tidewater elevators.

The analysis of terminal elevator and processor replies is based on responses of 13 terminal elevators out of the total of 29--about 45 percent. Of the 13 terminal elevators reporting, 9 were located at interior points and 4 were located at tidewater ports. The replies of 12 feed processors pertaining to grain receipts were included with responses of the terminal elevator operators.

To present the data reported by the terminal elevator operators, the Northwestern States were divided into three areas (fig. 2). The first includes the terminals located at Northern Interior points in Washington and Montana. Tidewater terminal elevators include elevators accessible from ocean channels

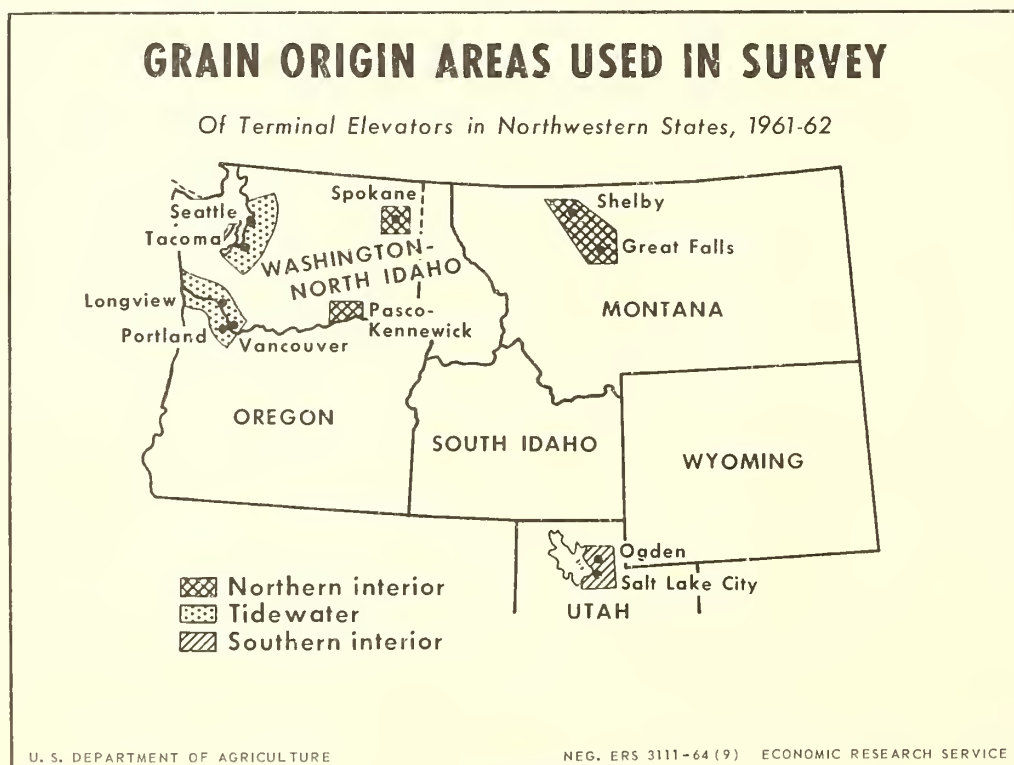


Figure 2

and include those located on the lower Columbia River and Puget Sound. The Southern Interior includes the terminals in the Salt Lake area.

The following tabulation shows the breakdown of the terminal elevators, by area.

<u>Area</u>	<u>Number of terminal elevators</u>
Northern Interior	6
Tidewater	4
Southern Interior	3

Processors were located as follows: Washington--5, Oregon--4, Idaho--2, and Montana--1.

FACILITIES AT TERMINAL AND PROCESSOR PLANTS FOR LOADING AND UNLOADING GRAIN

All terminal elevators were equipped to load and unload rail cars, and 11 of the 12 feed manufacturers were equipped to unload grain from rail cars. Ten terminal elevators reported that they had facilities for loading trucks and 11 had facilities for unloading trucks. Eleven feed manufacturers reported their plants were equipped to unload trucks. Of the four terminal elevators located at tidewater sites, one was equipped to load barges and three were equipped to load and unload barges. Three could both load and unload ocean vessels. Interior river terminals were equipped to receive grain by rail and truck and load out by rail, truck, and barge. Over half the terminal elevators reported that they had made changes in their loading and unloading equipment in the last 5 years.

Of the 12 feed manufacturers, 4 had made changes in their unloading facilities during the last 5 years. Two had installed suction air unloaders for trucks, one had installed a truck dump, and one had completely changed the unloading facilities for rail cars, changing over to facilities for unloading covered hopper cars. Three firms--one terminal elevator and two processors--reported plans to make changes during 1962; these changes were to facilitate the handling of trucks.

Facilities for Handling Rail Cars

Inquiry was made of terminal elevator operators as to the maximum number of rail cars that could be loaded during a 10-hour work day, with regularly scheduled switching service.

The tidewater terminal elevators had facilities for handling the greatest number of rail cars. Of the four tidewater elevators reporting, only one loaded out any rail cars during the 1960-61 year. The other elevators were primarily grain exporters, and their rail facilities were used for unloading rail cars only. The average number of rail cars that could be handled daily at 9 interior terminals was 25.4, and the average weekly loadings from interior terminal elevators ranged from 10.7 rail cars during the first quarter to 13.9 during the fourth quarter for the marketing year 1960-61 beginning in July.

Although the overall average weekly carloadings were relatively consistent, having a spread of 3.2 rail cars, the average number loaded ranged considerably wider between specific areas. Terminal elevators in the Northern Interior ranged from 6.5 to 12.5 rail cars per week. Average weekly carloadings from terminal elevators in the Southern Interior ranged from 11.1 rail cars per week in the first quarter to 19.4 during the fourth quarter. This was a wider variation with a range of 8.3.

Of 12 processing firms reporting, only 1 reported that it had no rail siding for receiving grain. The rail facilities for the remaining 11 varied, with sidings accommodating from 1 to 6 rail cars. The average number of rail cars that could be handled daily by a processing firm was 2.4. The processing firms were requested to state the number of rail cars unloaded at their plants rather than the number loaded. This procedure was followed because any rail shipments that might be made from processor plants would most likely be in the form of feed rather than grain. The average number of rail cars unloaded at the processor firms each week ranged from 2.5 to 2.9. This low range in variation of number of cars handled resulted from the characteristics of their operation. They had a fairly consistent year-round clientele to whom they furnished feed, and their needs for grain did not fluctuate to any great degree.

Facilities for Handling Covered Hopper Rail Cars

Covered hopper cars recently made available to the grain trade are designed for rapid loading and unloading. In tests conducted by a manufacturer, 165,000 pounds of shelled corn was loaded into a covered hopper car in 14 minutes. In another test, 3,000 bushels of spring wheat were unloaded in slightly less than 3 minutes (19).

Covered hopper cars increased steadily in number from about 20,000 in 1950 to over 71,000 on July 1, 1963. This number included all covered hopper cars used for transporting dry bulk commodities. In 1961, it was estimated that only about 12 percent of the grain movement was transported in covered hopper cars (18).

The railroads are placing increasing emphasis on the purchase of larger and more specialized rolling stock. This is evidenced by the decrease in the number of freight cars owned by the Class I railroads in the United States which declined almost 49,000 cars from July 1961 to July 1963. The number of boxcars, gondolas, open-top hopper cars, and tankers decreased; whereas specialized cars, such as covered hopper cars, increased.^{6/} Although a portion of the overall decline has been offset by the purchase of larger freight cars, the number of special cars is increasing.

Within the grain trade, a national survey inquiring into the use of covered hopper cars for transporting grain and grain products was made in 1963 (2). According to the summary report, two major points stood out.

1. All respondents agreed that rail carriers should be encouraged to obtain covered hopper cars for use by the grain shippers.

^{6/} Equipment Data, Car Service Division, Association of American Railroads, Washington, D.C.

2. About one-third of the respondents indicated they are not presently equipped to either load or unload covered hopper cars, but nearly all respondents indicated they would be willing to make the necessary alterations to load and unload covered hopper cars.

Terminal elevator and processor operators in the Northwest were questioned concerning the use of covered hopper rail cars. Of 13 terminal elevators, 10 had under-track pits for unloading covered hopper cars, and 4 of 12 processor plants had facilities for unloading them. Of the 10 terminal elevators, 6 that had facilities received grain in covered hopper cars, and 3 of the processor firms received grain by covered hopper cars.

Of the 10 terminal elevators equipped to unload covered hopper cars, only 3 stated that they were generally available. The seven who stated they were not generally available were further asked if more of the hopper cars would be advantageous to them. Four said yes, while three said no.

Favorable comments for covered hopper cars were generally that they were easier to load and unload and that less manpower was required to handle them. Of the four processors who had equipment for loading and unloading rail cars, three stated that covered hopper cars were generally available for their use. The other stated they were not generally available, but that it would be to his advantage if more were available. He stated that covered hopper cars were easier and faster to unload and required less manpower.

According to data published by the Interstate Commerce Commission, the railroads serving the Northwest Region^{7/} have fewer covered hopper cars than railroads serving other grain producing regions of the United States. As of December 1961, Class I railroads in the United States owned about 66,000 covered hopper cars. Eleven Class I railroads serving the Northwest Region of the Western District (as defined by the ICC) owned about 5,200 covered hopper cars, or 8 percent of the national total, and 20 percent of the total in the Western District. Many of these covered hopper cars are probably used to transport dry-bulk commodities such as cement and chemicals, and few are available for grain movement.

Effect of Multiple-Car Billing on Receipts and Shipments of Grain by Rail

Although multiple-car rates have limited or no transit privileges, they are competitive with those of truck and barge transporting grain direct from an origin to a destination without any privileges. They differ from normal or

^{7/} The Northwest Region, as defined by the Interstate Commerce Commission, includes Washington, northeastern Oregon, northern Idaho, Montana, northern Wyoming, North Dakota, South Dakota, Minnesota, northern Iowa, and Wisconsin. Of the 11 Class I railroads included in the Northwest Region defined by the ICC, 5 operate in the Northwestern States used in this survey (11).

limited transit rates in that a considerably larger volume of grain is required in the shipments to take advantage of the lower rates.^{8/}

This new rate structure is a departure from traditional concepts of rate-making. The service provided by the railroad under these lower multiple-car rates is similar to the service provided by the truck and barge carriers; namely, movement from one origin to one destination with no transit or other privileges.

Although multiple-car rates have not been initiated in the Northwest, inquiry was made of terminal elevator and processor operators concerning their opinion of single billing for multiple-car shipments. Seven terminal elevator operators responded that they could use single billing for multiple-car shipments. However, four were tidewater elevator operators who did not usually ship large quantities of grain by rail. Six terminal elevator operators stated that they could receive multiple-car shipments of grain. Four were tidewater elevator operators who receive grain in large quantities.

Of operators reporting that they could use single billing for multiple-car shipments, two replied that it would make recordkeeping simpler and expedite the receipt of payment for large quantities of grain. Two replied that there would be no effect on their present operation, and one replied that revamping of present receiving and shipping methods would be necessary. Those who said "no" commented that multiple-car shipments would be of no value since their individual receipts and shipments were on a normal carload basis.

The processors directed their responses toward receipts of grain in multiple-car movements. For receipts, 10 to 12 reported that single billing would be of no advantage to them. Five processors stated that their operations were not sufficiently large in size to handle a large volume of grain, and four said it would have no effect on their operation.

GRAIN RECEIPTS AND SHIPMENTS OF TERMINAL ELEVATORS AND RECEIPTS OF PROCESSORS IN THE NORTHWESTERN STATES

Grain Receipts at Terminal Elevators and Processors

The effect of increased truck movement on the traditional grain marketing channels is of primary interest to the grain trade. Over the years, the gathering and distribution of grain and grain products has developed around rail transportation. To augment this development, the railroad industry initiated a system of rates facilitating the movement of grain and providing convenient privileges to grain merchandisers. However, increased grain shipments by truck and barge indicate that a shift from the traditional rail carriers has been occurring for some time.

^{8/} In early 1963, the Interstate Commerce Commission completed the hearing on I & S Docket Number 7656, "Grain in Multiple-Car Shipments--River Crossings to the South." The decision handed down by Division Two of the Interstate Commerce Commission was generally favorable to the railroad. This decision allowed institution of a greatly reduced rate applicable to volume shipments (5 carloads, 450 ton minimum) moving on a single bill of lading in aluminum-covered hopper cars with individual capacities of 100 tons or more.

Sources of Grain

Northwest terminal elevators and processors receive most of their grain from the Northwestern States. Montana was a major source of grain for 12 of 13 terminal elevators. Of the six elevators located in the Northern Interior, all are in or near the State of Montana. All of the tidewater elevators and two of the three located at Southern Interior points received grain from Montana. Since Montana is the largest grain producer of the Northwestern States and is also located on the eastern extremity of the region, it has the widest range of market areas. Montana grain is marketed through West Coast terminals, Southwestern terminals, and Eastern terminals.

Grain produced in Washington and Oregon was marketed predominantly through terminals located in eastern Washington and on the Northwest Coast. Idaho, like Montana, was a predominant source of grain for all terminal elevators in the Southern Interior and on the West Coast.

Processors in the Northwestern States reported a wider dispersion of grain sources than terminals did. The North Central States were the source most often reported with Washington, Oregon, Montana, Idaho, and the Southwestern States following. Processors are primarily feed manufacturers and this accounts for the high volume of grain received from feed-producing areas.

Receipts by Motortruck

Eleven Northwestern terminal elevator operators reported receipts of 15.7 million bushels of grain by truck during the 1960-61 marketing year. Of this total, 50 percent was trucked from country elevators, 31 percent was from farmers, and the remainder originated at other sources. Wheat composed 87 percent of the receipts. Five of the terminal elevators were located at Northern Interior points, three at Tidewater ports, and three at Southern Interior points. The average number of bushels of grain received during 1960-61 by truck at elevators in each area was: Northern Interior--1.3 million; Tidewater--1.8 million; and Southern Interior--1.3 million.

The volume of grain trucked to the processors was considerably smaller amounting to only 1.86 million bushels of grain in 1960-61, an average of about 155,000 bushels per firm. About 25 percent of the receipts trucked to processors were received direct from farms, and the remainder was shipped from country elevators. The bulk of their trucked grain was oats, barley, and other grains used in the manufacture of feeds.

Grain Shipments From Terminal Elevators

Terminal elevator operators reported their nongovernment and Government grain shipments by type of carrier for the years 1956-57 through 1960-61, and the amount of grain shipped to markets of first destination for the latter year.

The 13 terminal elevator operators returning usable questionnaires reported nongovernment grain shipments of 58.1 million bushels in 1960-61. This was a high for the 5-year period. In 1956-57 and 1957-58, shipments were 43.2 to 43.3 million bushels; in 1958-59 they dropped to a low of 36.6 million bushels. Most of the grain shipped from terminal elevators was loaded into ocean vessels

for export. Exports averaged 82.7 percent of grain shipments for the 5-year period and ranged from 75 percent to 86 percent. Rail shipments accounted for an average of about 10 percent during the 5-year period, and truck and barges hauled the remaining shipments. Although trucks were used for only a few shipments of grain from terminals, the volume and proportion have increased. In 1956-57, trucks hauled 67,000 bushels of grain from terminals or 0.2 percent of total shipments. In 1960-61, the volume had increased to 1.5 million bushels or 2.5 percent of total shipments.

Of total nongovernment grain shipments, those terminals located on the coast reported the greatest amount of activity. Tidewater elevators shipped, on the average, about 85 percent of all nongovernment grain shipped from terminal elevators. Practically all of this volume was exported.

Commodity Credit grain shipments declined appreciably from 1956-57 through 1958-59 and then increased slightly from 1959-60 through 1960-61. The bulk of the Commodity Credit Corporation shipments in 1956-57 was exported, and the decline in shipments of CCC grain during the following years resulted from a decrease in exports. The volume of CCC grain exported decreased from 34.7 million bushels in 1956-57 to a low of 5.8 million in 1958-59, but then increased to 8.1 million in 1959-60 and 7.4 million in 1960-61.

Since many of the terminals in the Northwest are located in or near the white wheat producing area, most of the grain handled was white wheat. Red wheat produced in Montana and South Idaho was also marketed but in much smaller portions compared to white wheat.

For the year 1960-61, the 13 terminal elevator operators reported their grain shipments to the first consigned markets by mode of transport. Nongovernment grain was shipped to markets on the West Coast and to export markets. Of total grain shipments, 47.8 million bushels or 82 percent were shipped to foreign ports. Most domestic grain shipments went to markets within the Northwestern States with a smaller portion moving into California. Domestic shipments accounted for 18 percent of total nongovernment shipments.

Nongovernment grain shipments to domestic markets moved predominantly by rail in 1960-61 which accounted for 54 percent of the domestic shipments. Thirty-two percent was shipped by barge and the remaining 14 percent was shipped via truck. Of the volume shipped to California destinations, 79 percent went by rail.

In 1960-61, 7.4 million bushels of Government grain was shipped to foreign markets; it accounted for 54 percent of the Government grain shipments. Of the remaining 6.2 million bushels shipped to domestic destinations, almost 70 percent went to California with 36 percent of this amount moving by truck.

Supplementary Data on Receipts and Shipments at Terminal Elevators

Receipts

A compilation of inspection data for grain receipts at Northwest terminal

markets presents a more complete picture of grain movement in the Northwest.^{9/} Inspected receipts at Columbia River ports (Portland, Vancouver, and Longview) averaged about 46 percent of the total inspected grain receipts at terminal market areas in the Northwest during the years 1958-59 through 1961-62. The interior terminal markets including Pasco, Spokane, and Lewiston accounted for 28 percent of inspected receipts in 1958-59 and 22 percent in 1961-62. Puget Sound ports averaged about 18 percent of total inspected receipts. The terminal market areas in Montana and Utah received the remaining 8 to 14 percent.

Wheat accounted for the largest portion of inspected receipts at the terminal areas--65.7 percent in 1958-59, 73 percent in 1959-60, 78.2 percent in 1960-61, and 72.2 percent in 1961-62. Receipts of barley declined during the 4-year period, although a slight increase was shown in 1961-62. Barley was 28 percent of total receipts in 1958-59, 23 percent in 1959-60, 16.5 percent in 1960-61, and 18.2 percent in 1961-62.

All market areas received grain by rail and truck and Columbia River ports also received grain by barge. Grain inspection data show that 76 percent of grain receipts at terminal markets were by rail, 15 percent by barge, and 9 percent by truck during the 1961-62 marketing year. The portion transported into the terminal market areas by truck was relatively steady during the 4-year period, 1958-59 through 1961-62. However, the rail and barge volumes changed; rail receipts declined 5.3 percent from 1958-59 through 1960-61, while barge receipts increased 5.4 percent. In 1961-62, rail receipts again increased and barge receipts decreased. The following tabulation shows the percentages of inspected grain receipts at terminal market areas, by type of carrier for the 4-year period, 1958-59 through 1961-62.

Year	Percentage of grain shipped by:		
	Rail	Truck	Barge
	Percent	Percent	Percent
1958-59	78.8	10.6	10.6
1959-60	76.1	9.6	14.3
1960-61	73.5	10.5	16.0
1961-62	76.0	9.4	14.6
4-year average	76.2	10.0	13.8

Grain Market News, Grain Division, Agricultural Marketing Service, U.S. Dept. Agr.

^{9/} To present data of grain receipts and shipments from terminal elevators more completely, various sources were used as a basis for compiling secondary data on grain movement (10, 12). Grain Market News, Grain Division, Agricultural Marketing Service, U.S. Dept. Agr.

Shipments

The relationship of domestic rail shipments to rail receipts is used here as a basis for demonstrating the degree to which terminals supply the domestic market with grain and grain products. The amount of domestic grain shipped by rail relative to rail receipts indicates most of the grain that is received at interior terminals is processed, while receipts at tidewater terminals are exported. No data are available showing the number of shipments consigned to interior terminals that was diverted or reconsigned, but Montana country elevator operators indicated that the volume moved in this manner was sizable (pages 8-10). Truck shipments of grain from terminal elevators, which were minor, were not used. In 1961-62, shipments of grain by truck amounted to about 137,000 bushels, according to inspection data (10).

Domestic rail shipments of grain from tidewater terminals were minor. They ranged from 1 to 2 percent of total receipts at Columbia River and Puget Sound ports. Rail shipments from interior terminal elevators accounted for a higher percentage of their total receipts. However, at terminals located in eastern Washington and North Idaho (Pasco-Kennewick and Spokane, Wash., and Lewiston, Idaho), rail shipments as a percentage of total receipts are only slightly higher than receipts at elevators located at the tidewater areas.

Grain shipments by rail from terminal elevators in Montana and Utah were highest relative to their total grain receipts. Rail shipments from terminal elevators in Montana were 22 percent of receipts in 1958-59 but declined to about 15 percent by 1961-62. Although grain receipts and shipments both declined at Montana terminals during the 4-year period, shipments decreased at a faster rate. Rail shipments of grain from terminal elevators in Ogden-Salt Lake City were 15 percent of grain receipts in 1958-59. In 1960-61, the ratio reached a high when shipments were 39 percent of receipts but decreased to 22 percent in 1961-62.

Most of the grain received at tidewater terminals is exported and moves chiefly into the Far East market. Grain exports for the last 3 years under review exceeded receipts at West Coast terminal markets. In the crop year 1961-62, Columbia River and Puget Sound ports exported 154.8 million bushels of grain while receipts amounted to 127.7 million bushels. The difference was probably accounted for by the decrease in storage which declined 18.1 million bushels from 1959 to 1960 and 28.8 million bushels from 1960 to 1961 in Washington and Oregon.

Wheat receipts in 1961-62 accounted for 92 million bushels while wheat exports amounted to 109 million bushels. These export shipments, plus domestic use, account for a major portion of the decline in wheat stocks held at Northwest Coast terminals, which fell from 49 million bushels in July 1960 to 17 million bushels in July 1962 (13, 17).

Total grain exports from Pacific Coast ports, including California ports, increased in 1958-59 and 1959-60 but declined in 1960-61 and again in 1961-62. Shipments of grain from the Gulf ports and Great Lakes ports have increased in volume and in proportion to the total volume of grain exported. Grain shipments from Pacific Coast ports have decreased relative to other port areas. In 1959-60, export grain shipments originating at Puget Sound ports, Columbia River

tidewater ports, and California ports amounted to 194.1 million bushels. These shipments were 19 percent of all grain exported from the United States. In 1961-62, the volume had decreased to 177.3 million bushels, and Pacific Coast ports accounted for 13.4 percent of the total grain export volume. Receipts of grain by rail, truck, and barge declined after 1959-60 at Puget Sound ports and Columbia River ports from 145.9 million bushels to 127.7 million bushels in 1961-62.

OWNERSHIP AND UTILIZATION OF TRANSPORT EQUIPMENT

Terminal elevator and processor operators were asked to state whether their firms owned or leased any transportation equipment that was used either to deliver grain to or from their plants. Two terminal elevators and three processors operated their own trucks, and one terminal elevator and one processor leased trucks. The trucks operated by the terminal elevators were used entirely to pick up grain for the terminal elevator. Of total trucked receipts at the sampled terminal elevators in 1960-61, about 12 percent was reported as being delivered in elevator-owned or leased trucks. Of this amount, about 54 percent (246,000 bushels) was delivered to the elevator direct from farms. The trucks were not used to make grain shipments.

Of the four processors using their own or leased trucks, three operators stated that they used trucks to transport grain to their plant. One processor said all truck receipts were delivered in the processor-operated trucks. Of the grain delivered, 20 percent was hauled directly from farms.

With one exception, the owned or leased trucks were operated, on the average, within a 75-mile radius of the firms. One terminal elevator used its own trucks to pick up grain for distances up to 600 miles and to deliver its own grain or grain products equivalent distances. None of the firms used trucks to haul grain on a for-hire basis.

REASONS REPORTED BY TERMINAL ELEVATOR AND PROCESSOR OPERATORS FOR USING VARIOUS MODES OF TRANSPORT

Advantages and Disadvantages of Moving Grain by Rail

Twenty firms reported advantages of rail cars for moving grain.

Advantages

The advantage "Railroads provide transit services" was reported most often. Transit privileges permit the stopping of grain while en route from an origin to a destination for a particular service such as milling, storing, mixing, or cleaning, with continued movement of the grain or its product at the balance of the through rate. (A through rate applies from one origin to a final destination between which several intermediate points may be located. Local rates applying between the intermediate points will usually total more than the through rate.)

When grain is stopped for transit at an intermediate point, the freight charge is paid to that point; and a record of payment is kept by the firm using the transit. This payment is credited as part payment on the applicable through

rate when the outbound shipment is made to a final destination. Transit privileges are of greater importance among terminals because their operations involve milling and grain storage.

The second advantage, "Grain can be handled faster, more expeditiously in rail cars," and third, "Rail cars hold larger quantities of grain," were reported by eight and six firms, respectively. Grain in rail cars is handled more expeditiously because of the larger volume rail cars. To unload a rail car by a mechanical car dumper takes more time than to unload a truck with a mechanical truck dumper, but the volume of a rail carload is greater than that of a truck-trailer load. The overall cost is somewhat less per bushel for rail-delivered grain than for truck-delivered grain (5). When unloading vehicles with semimechanical methods such as power shovels, the effort required to unload a rail car in comparison to a truck is not significantly greater on a per bushel basis, when the extra placement and time involved in truck handling is considered. However, few firms use power shovels for unloading trucks (5).

The terminal and processor operators reported advantages more often than disadvantages for transporting grain by rail. Seven advantages were reported a total of 37 times by 20 operators, and 7 disadvantages were reported 16 times by 15 operators.

Disadvantages

Disadvantages described by terminal and processor operators were oriented toward poorer service. Five operators stated that they received irregular switching service, which indicates that they received delayed service and not as scheduled. There has been some research regarding service provided by railroads, and in 1959, a survey of country elevators in North Dakota showed that: Railroads furnished 88 percent of total cars ordered; it took an average of 4 days to fill car orders; 10 percent of cars were rejected; 88 percent of the cars accepted required an average of 45 minutes each to clean and repair and an average of 38 minutes to install grain doors. Loaded boxcars stood on a siding an average of 28 hours before being picked up (9).

Advantages and Disadvantages of Moving Grain by Truck

Operators interviewed at the terminal elevators and processor plants reported eight major advantages and eight major disadvantages of moving grain by truck.

Advantages

"Lower rates" was the most frequently reported advantage; second, "Trucks can handle smaller quantities." Trucks do handle smaller quantities (about 650 bushels per truck compared to 1,900 bushels per rail car), and the truckload rate for grain is lower than the rail rate for a comparable quantity moving at a less-than-carload rate. For the small local feed processors, the trucker provides a method for transporting small quantities of grain at low rates. The processors realize further economies by not having to maintain storage facilities for larger quantities of grain. The terminal and processor operators also

reported that trucks provided faster and better service and that trucks were easier to unload.

Disadvantages

Eight disadvantages for moving grain by truck were reported by 13 terminal and processor operators a total of 25 times. The disadvantage reported most often--that trucks were less convenient to handle and had no scheduled arrivals--was reported 10 times. Operators also stated that trucks were slower to load and unload per man-hour.

Relationship of Advantages and Disadvantages for Shipping Grain by Rail and Truck

The two most frequently reported advantages for using rail cars for shipping grain was that the railroads provided transit services and that grain could be handled faster and more expeditiously. On the other hand, the two most frequently reported disadvantages for using trucks were: Less convenient to handle, trips were unscheduled, and trucks provided no transit services. Such services are important to terminal operators because they handle large quantities of grain and often reship domestic grain as grain products.

Lower rates and better service were reported often as advantages for shipping or receiving grain by truck, while "Poor service" and "Rail rates are higher to some destinations" were reported as disadvantages for shipping grain by rail.

The Effect of the Quality of Service on Choice of Carriers

Of 25 terminal elevator and processor operators replying, one terminal and four processors reported increased use of a particular carrier because of service factors. Four of the five reporting indicated that they had shifted to trucks for grain shipments because of service factors. Rail carriers provided better facilities for large shipments, and trucks were the best means for small shipments. However, as was stated in the country elevator discussion, service factors are of minor importance in determining the type of carrier used. The usual method of transporting grain, carrier rates, and the facilities used at the plant to load carrier equipment are probably of greater importance.

Importance of Transit Privileges

Transit privileges provided by the railroads are a valuable service to terminal operators. Replies of the 13 terminal elevator operators indicated that transit privileges are of major importance to their operation. Although most of the operators stated that this importance has remained the same, several stated that transit privileges are at a level of major importance. In most instances, the interior elevators are also in the milling business, which requires a movement of grain products--predominantly flour--to distant markets.

In contrast, the feed processors placed less emphasis upon the importance of transit privileges. Only half reported that transit privileges were of major importance in their operations. In comparison, the terminal elevators handle greater volumes of both grain and grain products, with bulk shipments

being made on the balance of through rates to the destination. Processors, on the other hand, usually service a localized area and make delivery of feed products by truck.

Discounting Trucked Grain

The price paid for grain received in trucks at terminal elevators is determined somewhat by the facilities available for receiving trucked grain and the primary grain handling business performed at the elevator. Operators at terminal elevators located at interior storage and milling points are apt to discount grain delivered by truck because of the loss of the rate saving that results from using rail transit rates. Grain received by rail can be reshipped either as grain or grain products at the balance of a through (transit) rate.

Grain received by truck is not permitted to be reshipped by rail at the balance of an applicable through rate, however, but must be reshipped either by truck or by rail at the rail rate applying to shipments originating at the intermediate terminal. (A rail through rate is usually lower than the total of the aggregate of intermediate rates applicable for intermediate distances within the overall distance to which the through rate applies.)

Grain milled into flour is not subject to the agricultural exemption as stated in Part II of the Interstate Commerce Act; it moves at published motor carrier rates. In order to cover these added expenses incurred by the elevator, trucked grain is often discounted relative to rail-delivered grain.

Terminal elevators located at tidewater or river ports tend to pay the rail-delivered price for trucked grain. The necessity of rail transit billing is less important for terminal elevators located at ocean or river ports. Elevators at the Pasco-Kennewick river facilities receive grain by truck and reload it into barges for movement to Portland and vicinity. Grain received at Portland, Vancouver, Longview, Tacoma, and Seattle is, for the most part, loaded into ships for export. Many interior terminal elevators have extensive rail-loading facilities, and their operations are oriented toward mass handling of rail cars. Although grain is received by truck, more units are needed to supply a quantity of grain comparable to a quantity delivered in a given number of rail cars.

Grain inspection procedures further influence terminal elevator operators to discount trucked grain. Grain delivered in rail cars receives Federal inspection before it is unloaded. Since truckers are usually pressed for time, they require that their trucks be unloaded without undue delay. Not all truck-delivered grain receives Federal inspection before it is unloaded. Thus it passes on a degree of risk to the elevator operator.

Several terminal elevator operators and processors in the Northwest suggested that truck rates are lower and, therefore, trucked grain should command a lower terminal price. Six terminal elevator operators in the Northwest reported that the price of truck-delivered grain was discounted relative to the price of rail-delivered grain. The most common explanation for discounting trucked grain was that the truck rates were lower. This indicates the desire of the terminal elevator operator to share in the profits from the use of the lower-cost truck transportation. Since the prices of grain at terminal

markets, including rail transportation charges and handling costs, are usually the basis for country pricing, the country elevator operator can increase profits by shipping larger quantities of grain by truck when trucks provide lower transportation rates.

There are occasions when terminal elevator operators will pay a premium for truck-delivered grain. When time becomes more important than other factors, elevator operators will offer a premium for trucked grain. A particular type or quality of grain can be delivered from a country station in the Pacific Northwest to a terminal in about 1 day by truck, whereas several days may be required for a similar delivery by rail.

One processor reported that he paid a premium for trucked grain and was doing so as a result of rail rate reductions. His facilities were set up specifically for receipt of grain by truck, and lower rail rates necessitated premium payments for truck receipts. In such circumstances, trucks may not be available to areas where they cannot effectively compete with railroads on the basis of rates.

PART III: THE CHANGING RAIL RATE STRUCTURE

INCREASING RAIL RATES: 1946-1958

Between 1900 and the mid-1930's, there evolved what is often termed the historical or traditional marketing channel through which grain moved from the producer to the consumer. Country elevators along the rail lines bought grain from the farmers and shipped it on to the terminals and millers. Grain pricing was based on the quotations at the major grain exchanges, and country elevator operators, knowing the rail rates, could pay the farmers the terminal price less transportation and handling costs. Prior to the 1930's, railroads were the only reliable means for transporting grain. Highways and waterways were, for the most part, undeveloped. Although there was some movement on the waterways, unpredictable water levels at various seasons and ice in winter limited their usefulness.

In 1946, the railroads increased their rail rates for the first time since 1938. This was the first of a series of rate increases which extended through 1958 and almost doubled the 1946 rate level during the 12-year period.

Effects of Rail Rate Increases Upon Country Elevator Operations

Country elevator operators in the Northwestern States were asked to state whether the increases in grain rates by rail had any effect on their choice of carrier. Their replies (178 replied) apply for the period 1946 through 1958.

Of 87 operators located in the Pacific Northwest, 58 replied that the increased rates had caused them to ship more grain by truck and barge. Many of them indicated that the shift had been predominantly from rail to truck, although a great portion of the truck shipments were destined for grain transfer facilities at river ports and subsequent movement by barge. As to the timing of the shift, some elevator operators indicated that it was gradual with increased truck shipments each year from 1946 through 1958. Most of them,

however, indicated that the shift did not start until about 1952 or later. Only a few of them reported a complete shift away from rail carriers.

Comments of country elevator operators in Montana, South Idaho, and Wyoming were similar to the comments of elevator operators located in the Pacific Northwest. Several of them stated that there had been a gradual shift from rail to truck since 1946, although the shift did not begin until the early 1950's. The rail rate increases of the late 1940's and early 1950's did not cause a great deal of hardship since the reported shift to truck at this time was apparently negligible. Although the increased use of trucks was probably encouraged by higher rail rates, the delay in their use can be partly attributed to their lack of availability prior to the 1950's. About 53 percent of the country elevator operators in Montana, South Idaho, and Wyoming had shifted from rail to truck, as had two-thirds of the elevator operators in the Pacific Northwest.

The reluctance of the grain merchandisers to decrease grain shipments by rail, even in the face of increasing cost, reflects their dependency upon railroads for receiving and shipping grain. However, as the rail rates increased, a gradual shifting from rail to truck occurred, particularly for shipments to receivers willing to accept trucked grain. Trucks provided a means for moving small lots at lower rates and faster service where services provided by the rail carriers were not needed. Lower truck rates increased the competition among elevators; those shipping by truck were able to offer a higher price to the farmers for grain. This practice, in turn, forced more country elevator operators to use trucks.

Effects of Rail Rate Increases Upon Terminal and Processor Operations

Effects of the rail rate increases were most evident for grain shipments to terminal elevators. Over two-thirds of the terminal elevator operators replied that rail rate increases had caused a decrease in the number of rail inbound shipments. Increased truck receipts at terminals have resulted from the increase in the number of country elevator operators who have shifted to motor carriers to retain their competitive position. Most of the grain moving to Pacific Northwest ports is destined for export; thus the need for transit billing is lessened. The cheaper truck and barge transportation allows minimum service rates to export markets.

For outbound shipments, less than half reported that increasing rail rates had any effect on grain shipments by rail. Most of this grain is moved on transit rates, either already processed or to be processed. In order to take advantage of the transit rates, the terminals continue the shipments by rail.

Only 2 of 12 processors reported that increasing rail rates had influenced them to increase their use of nonrail carriers. Processing operations call for a variety of ingredients, many of which must be shipped from Midwestern States involving greater distances. Grain from West Coast sources was received in increasing quantities by truck, but for grain originating in the Midwest, no shift occurred.

DECREASING RAIL RATES: 1958 TO PRESENT

Within the area of the five Northwestern States, rail rate reductions were made because of increasing competition from trucks and barges with their lower rates. The most substantial reductions were made in Oregon, Washington, North Idaho, and western Montana. The first of these reductions effective on May 12, 1958, applied to grain shipped from Oregon, Washington, and North Idaho to Washington and Oregon coastal ports. These new reduced rail rates were designed to be competitive with truck, barge, and truck-barge grain rates. They allowed one transit stop with diversion limited to specific stations. The number of inspections was also limited.

In July 1959, reductions in normal rail grain rates (those rail rates that provide full transit and other privileges) were made from origins in Oregon, Washington, and North Idaho to North Coast ports. These reductions placed the normal rail rates at about 5 cents per cwt. above the competitive rates made effective in May 1958. In 1960, further reductions were made for both the competitive and normal rates from Oregon, Washington, and North Idaho to the West Coast ports. The new competitive rate reduction became effective in September 1960. The normal rate reductions came into effect in October 1960.

In Montana, rail grain rates were first reduced in October 1960 when a reduction was initiated on grain shipments from points west of the continental divide to North Coast ports and Spokane. The reduction also included a few points east of the divide as far as Bozeman. Further reductions were made in October 1961 from Montana origins to North Coast ports and to California; they extended the territory of the reductions made in 1960 to include origins in central Montana. Rail grain rates were also reduced from central and eastern Montana origins to Minneapolis and Duluth, Minn., and Superior, Wis., at the same time. The reduced eastbound rates applied to origins as far west as Great Falls and Shelby, Mont., where the reduction amounted to a decrease of 7 1/2 cents--from 87 1/2 cents per 100 pounds to 80 cents. In September 1962, further reductions were made in Montana to North Coast markets and to California.

A total of 179 country elevator operators replied to the inquiry concerning effects of rail rate reductions on their choice of carriers used and their marketing practices. As a result of the rail rate reductions, 68 had increased their shipments by rail. In the Pacific Northwest, 57 percent of those replying had increased their shipments by rail. Of the elevator operators in Montana and South Idaho, 21 percent were shipping more by rail. In Wyoming, the country elevator operators reported that there had been no rail rate reductions since 1958.

The higher percentage of operators in the Pacific Northwest that increased their shipments by rail compared to the percentage in Montana and South Idaho who have increased rail shipments indicates the effectiveness of the rate reductions that were made after May 1958. The competitive rail rates with limited transit privileges were effectual in meeting the competition of trucks and truck-barge carriers. Between May 1958 and September 1960, rail rates in Washington-North Idaho and eastern Oregon were reduced as much as 40 to 50 percent. In Montana and South Idaho, rail rate reductions have not been as numerous or as pronounced, and fewer elevator operators have shifted back to rail carriers for shipping grain.

Terminal elevator and processor operators were asked to state whether the rate reductions since May 1958 had influenced them to increase their use of rail carriers. For inbound shipments, seven terminal operators received more grain by rail, while six reported no change. Five operators had increased outbound shipments by rail, while eight reported that the outbound rail shipments had not increased. Two of the 12 processors had increased receipts by rail as a result of rail rate reductions.

PRESENT GRAIN RATES IN THE NORTHWEST

Grain is shipped from country elevators to terminals in the Pacific Northwest by rail, truck, and truck-barge combinations. However, barge carriers are, at present, limited to the navigable channel of the Columbia River, which extends upstream from the mouth to the McNary Pool and includes the ports at Pasco-Kennewick, Wash. By necessity, the barge carriers must cooperate with the motor carriers who bring grain from off-river points to the river grain terminals for transfer to barges. Competition among the carriers is, therefore, greatest between rail and truck carriers or rail and truck-barge carriers.

In the Pacific Northwest (Washington, Oregon, and North Idaho), rates for shipping grain by rail, truck, and truck-barge have been highly competitive since the last reduction of the limited-transit rail rates effective September 30, 1960. The rates by the three modes of transport vary only a few cents per bushel of grain. For distances from 200 to 350 miles, the rate differential between rail and truck ranges from about one-half cent to one and one-half cents. Truck-barge rates for distances of 300 to 400 miles are also similar to the rail and truck rates for comparable distances.

The competitive rail rates shown in figure 3 are the limited transit rates from North Idaho, Oregon, and Washington to North Coast ports; they are competitive with truck and truck-barge rates. They were reduced to the present level in 1960 and have been under protest since their effective date. In the Interstate Commerce Commission hearing on Docket 33571, "Grain from Idaho, Oregon, and Washington to ports in Oregon and Washington," the water carriers contended that the reduced rail rates effective after September 30, 1960, had caused their rates to be reduced to below full costs. In October 1962, the Interstate Commerce Commission recommended cancellation of the competitive rail rates and on September 18, 1963, this recommendation was upheld.

The order was stayed, however, pending further consideration by the Commission. The Commission stated that the limited transit grain rates from Oregon, Washington, and North Idaho to North Coast ports were unjust, unreasonable, and constituted destructive competition in contravention to the National Transportation Policy. The normal rail rates from these States and the competitive rates from Montana were found just and reasonable. The normal rail rates average about 4 cents per bushel higher than the competitive rail rates.

The effect of a cancellation of the competitive rail rates effective after September 30, 1960, would provide a margin for truck and truck-barge rate increases to be made and still allow their rates to remain competitive with or below the normal rail rate. Should the competitive rail rates be cancelled, the barge operators could be expected to increase their grain rates at least to a level covering their full costs for transporting grain.

Shipments originating in South Idaho and terminating on the West Coast move to ports in California as well as Oregon and Washington. Both rail and truck rates are proportionally higher than those from the Pacific Northwest to Oregon and Washington ports. For distances less than 700 miles, which includes shipments to the Northwest ports from South Idaho, rail rates are lower, but as the distance increases beyond 700 miles truck rates become the lower of the two.

Both rail and truck rates are higher for westbound grain shipments from Montana than from origins in the Pacific Northwest or South Idaho. Even though the distance from Montana origins is greater, the rates are higher on a bushel-mile basis. For instance, the rate per bushel-mile (the cost of moving 1 bushel of grain 1 mile) is .046 cent for a distance of 350 miles from an origin in Washington, while the rate is .056 cent per bushel-mile from a Montana origin 800 miles from the West Coast.

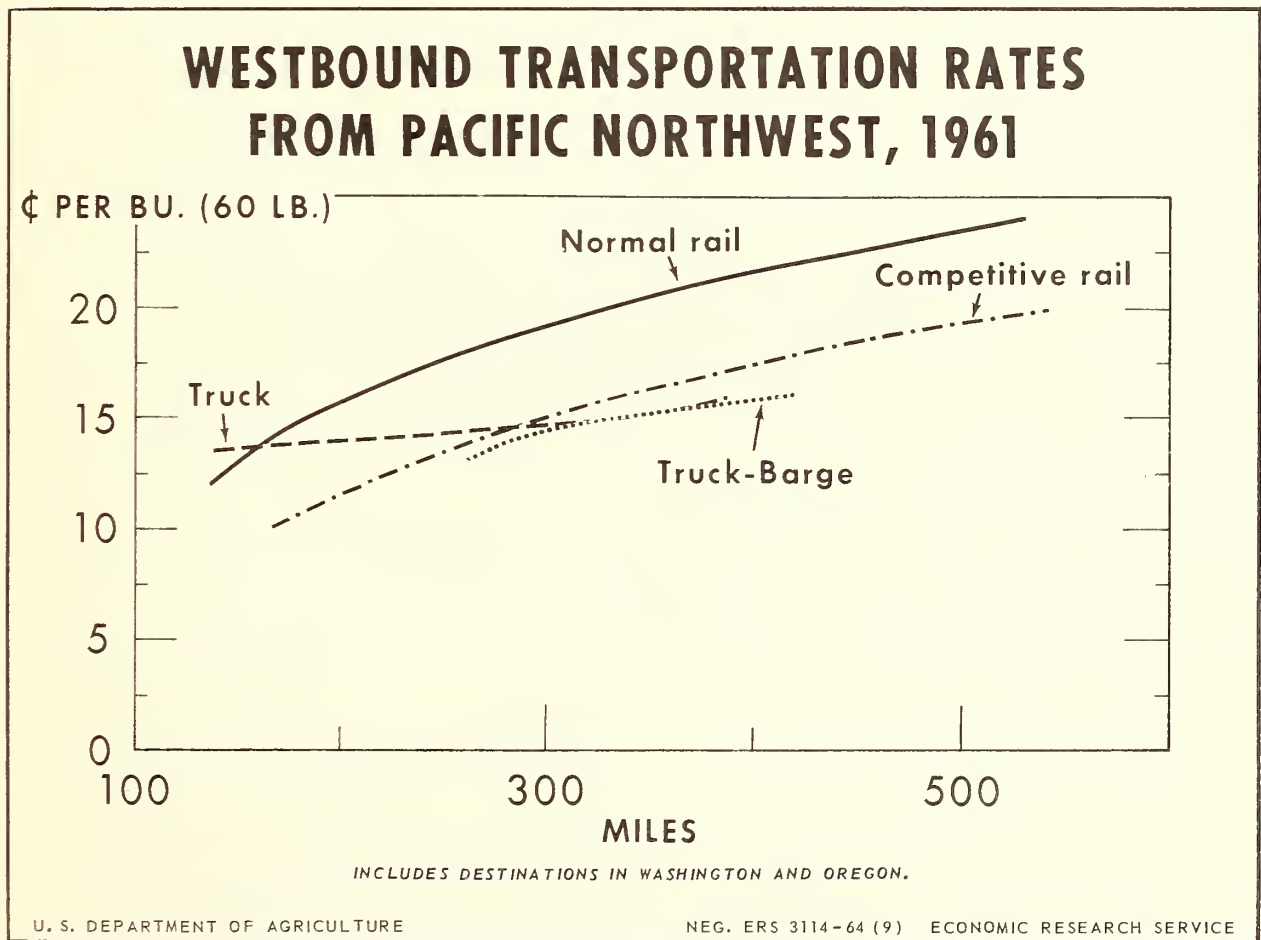


Figure 3

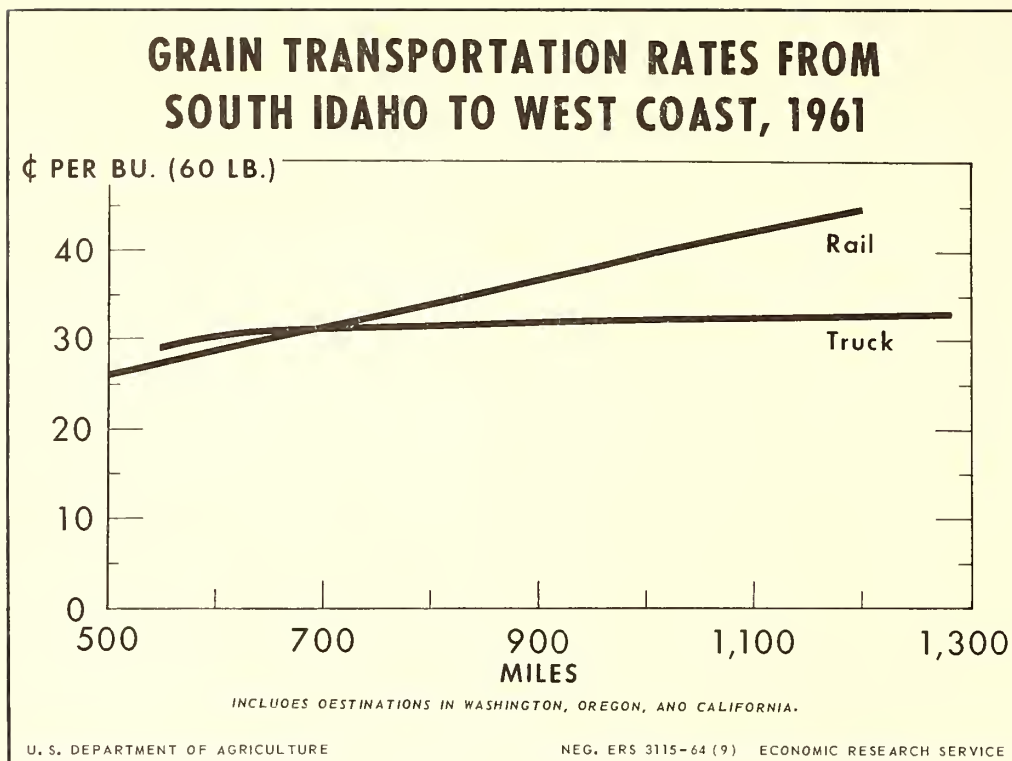


Figure 4

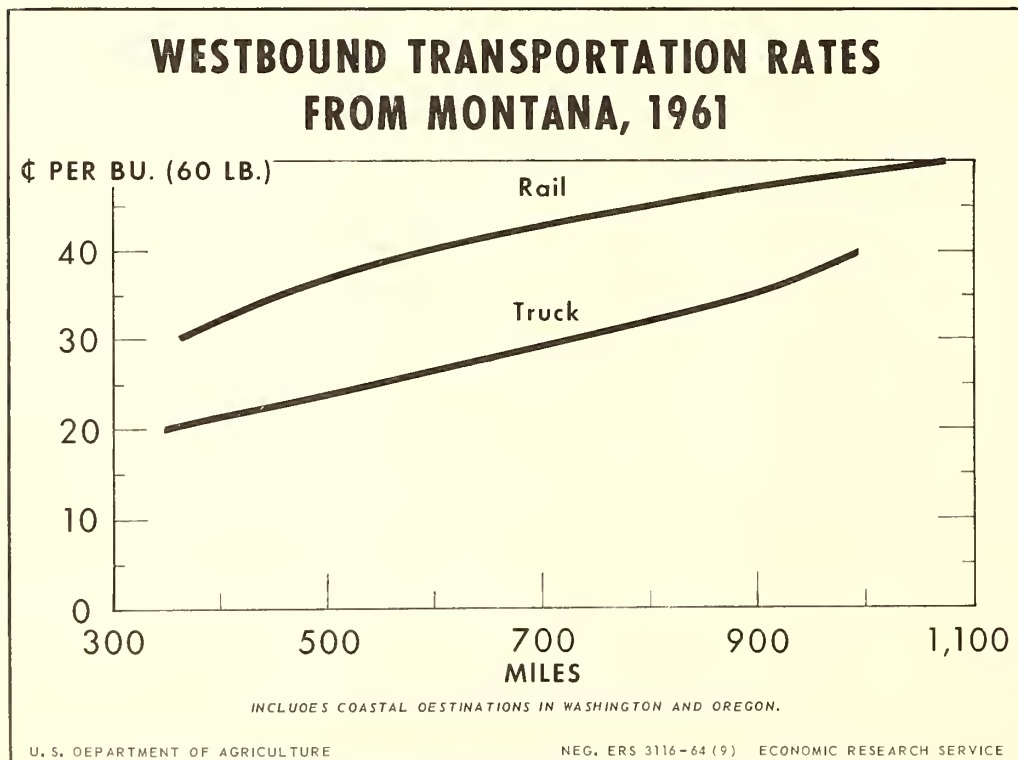


Figure 5

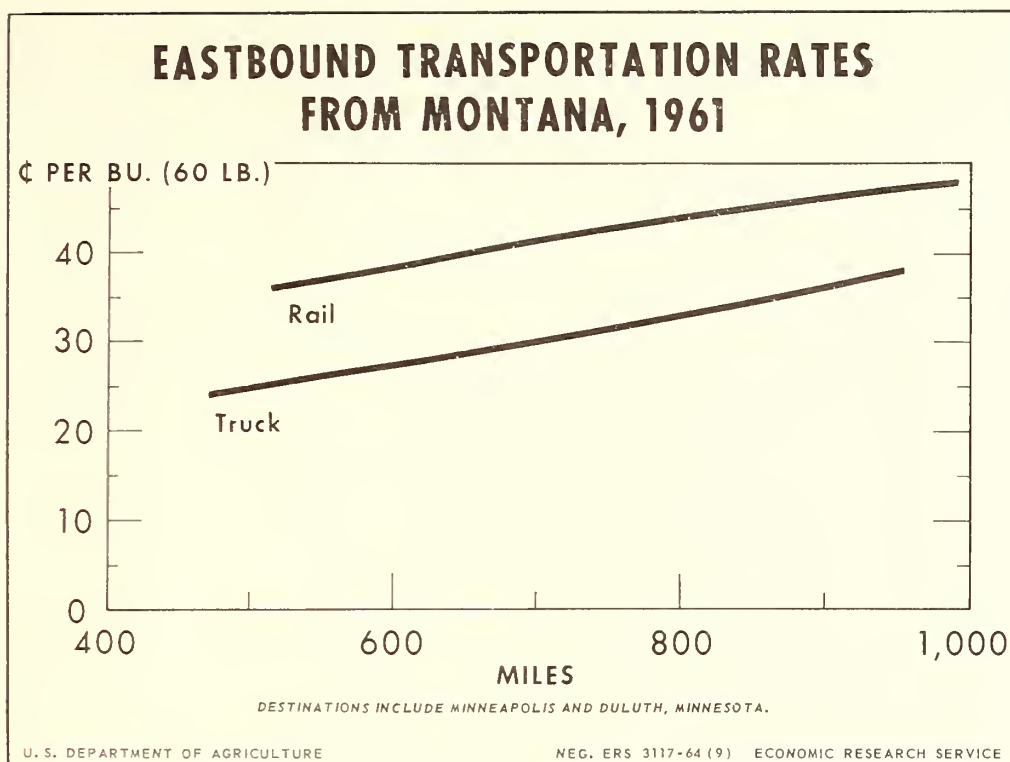


Figure 6

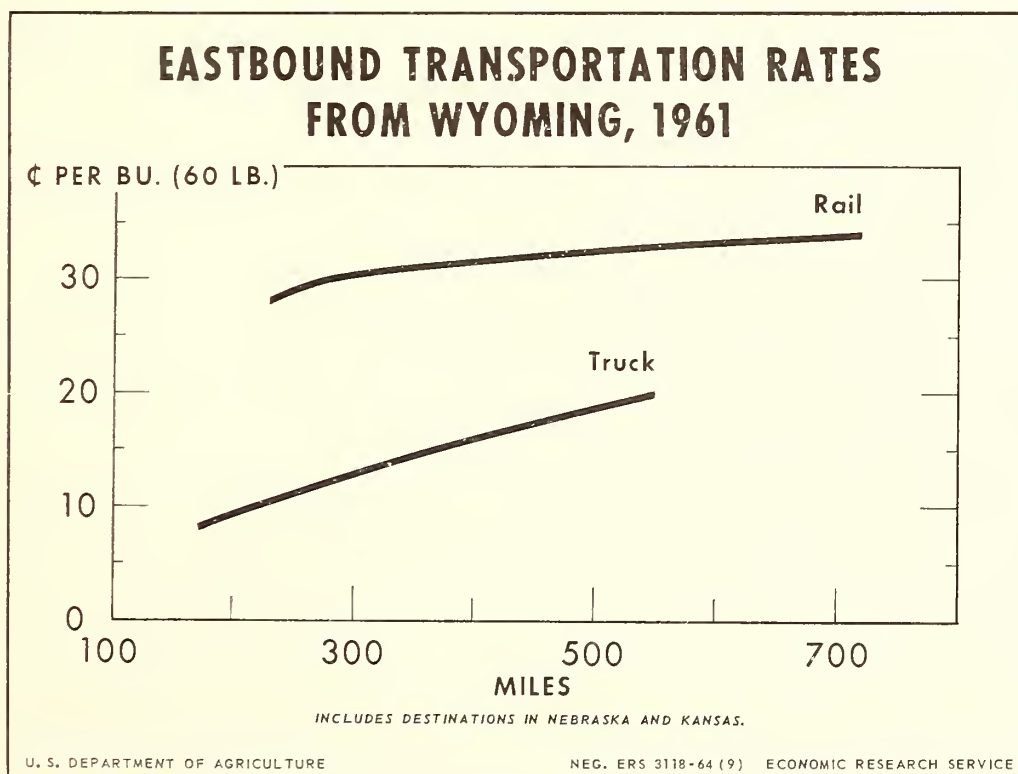


Figure 7

Freight charges for grain shipments eastward from Montana are similar to those for westbound shipments. Montana grain moving eastward goes predominantly into Duluth-Superior and Minneapolis with lesser amounts to other North Central destinations. The eastbound rail rates are lower than the westbound rates, varying from about 1 to 2 cents depending upon the distance. Truck rates for eastbound shipments are higher than those for westbound shipments, ranging from 2 to 3 cents per bushel more.

Grain shipments from Wyoming move predominantly eastward to markets in Nebraska and Kansas. Rail rates into these States from Wyoming origins are higher in comparison to rates from any other area in the Northwestern States for similar distances. For distances ranging from 250 to 350 miles, the rail rate increases from about 29.5 cents per bushel to 30.5 cents. This represents a drop from .116 cent per bushel-mile to .089 cent, but the per-bushel rail rate is more than twice the truck rate for comparable distances. Comparing the eastbound per-bushel rail rate from Wyoming with the normal westbound rail rates in Washington, the Wyoming rates are about 1 1/2 times greater for comparable distances.

Theoretically, freight rates increase as the distance increases but at a decreasing rate. Short hauls should, therefore, command a higher rate per unit-mile than long hauls. However, in the case of grain rates, the actual rates do not follow the theoretical plan. In the Pacific Northwest, carrier competition is more pronounced, and carriers must adjust their rates to compete with each other. In Montana, less competition exists among carriers, and freight rates are more nearly adjusted to what the traffic will bear.

Most of the truck shipments of grain from country elevators are backhaul movements, and the lower truck rates indicate that backhaul rates are charged by the truckers. Common or contract carriers, exempt for-hire truckers, and private carriers transported much of the trucked grain (88 percent) in 1960-61, and in most cases this was backhaul movement. Because of the predominant backhaul movement in the Northwest, truck rates do not maintain a true relationship to full cost theories but tend to reflect the competitive influence of rail rates.

The truck rates from the origins in the Northwestern States, when expressed in graphic terms, do not show an increase in the per-bushel rate that one would expect to provide full cost return for the distances the grain is transported. The curves are long, sloping upward very gradually. Several reasons can be noted for the lower truck grain rates.

1. Grain transported by truck is a backhaul movement, and the trucker is not entirely dependent upon getting full cost return from the grain haul.
2. Not only do truckers have competition from the railroads but they must also compete with each other. Since grain is an exempt agricultural commodity, it is used by all types of truckers as a backhaul, including many that do not depend upon grain hauls as a source of revenue. Private firms operating trucks and seeking a backhaul could conceivably set rates so low that they would cover nothing more than out-of-pocket costs for that particular haul.

However, even private carriers charge the going rate using the excess revenue above out-of-pocket costs to help defray overall trucking expenditures.

3. In some areas, grain merchandisers are operating their own trucks, and their rates need only reflect the variable costs associated with transporting the grain, while fixed costs might be distributed among several other commodity hauls.
4. These lower truck rates indicate that truckers are generally serving only those areas where two-way hauls are available. For shipments to areas where return hauls are not available, the truck rates will reflect the full cost of the two-way trip.

PROPOSED CHANGES IN TRANSPORTATION LEGISLATION

In the Presidential messages to Congress on transportation in 1962 and 1963, changes in the present transportation regulatory policy were recommended. Specific attention was directed toward the transportation of bulk and agricultural commodities. The need for equally competitive opportunity for all carriers was emphasized with less regulation in some respects and Federal assistance in others.

The President's messages stated that the bulk exemption as defined in Part III of the Interstate Commerce Act provides water carriers with an advantage which should be removed. In these messages, the President suggested, as a first choice, the extension of this bulk exemption to the other carriers or, as a second choice, the placing of all carriers under equal regulation through repeal of the bulk exemption. In addition, extension to all carriers of the exemption of agricultural and fishery products, now available only to motor carriers and freight forwarders, was advocated.

In both messages, it was suggested that should the exemptions be extended to all carriers, control of maximum railroad rates should be retained by the Interstate Commerce Commission along with other controls necessary to protect the public interest in areas where effective carrier competition may not be present. Legislation aimed at accomplishing these recommendations was introduced in both legislative branches in 1962 and 1963. However, neither of the bills was ever voted upon.

In February 1964, a bill was introduced into the House of Representatives that would have deregulated agricultural commodities. (H.R. 9903, "Transportation Amendments of 1964," was killed before reaching the House floor.) This bill would have extended to railroads and domestic water carriers the exemption now applicable to the transportation of agricultural commodities (including grain) and fishery products by motor carriers. In effect, railroads would have been placed on equal footing with motor carriers when transportation unmanufactured agricultural commodities with no regulation as to the rates charged. One stipulation pertinent to carrying agricultural commodities would be the requirement that all carriers submit to the Interstate Commerce Commission, within 30 days after the service was performed, a statement of the commodity hauled, the rate charged, and the origin and destination of the shipment.

CONCLUSIONS

Rail transportation in the Northwestern States continues to be very important to grain marketing, although its relative position has declined. Increased competition brought on by increasing numbers of trucks and the expanding volume of grain being moved by barges on the Columbia River has caused changes to occur in the flow patterns of grain from country origins to the Northwest Coast port areas.

Motor carriers are being used to transport more grain from country elevators. The data collected from the sample country elevator operators show that truck shipments of nongovernment grain increased from 30 to 32 percent of the total from 1958-59 through 1960-61. While this is a relatively small increase --less than 1 percentage point per year--country elevator operators are using motortrucks more for transporting grain. Although the time period is too short to determine a trend, truck shipments are increasing both relatively and in total volume for the combined region. While the relative truck volume increased 2 percentage points during the 3-year period, actual volume increased 15 percent.

There are several factors to consider in determining the increasing use of trucks, barges, and truck-barge combinations relative to rail usage. These factors can be included in three broad categories: Service, the nature of the market to which grain is shipped, and transportation rates.

Service factors include functions of the carriers, equipment provided to shippers, and the method and efficiency with which the carrier performs its functions. Motor carriers and barge carriers provide only the minimum transportation service to grain shippers, although trucks provide faster service. A truck can be loaded, driven to its destination, and unloaded in a fraction of the time taken for a rail shipment. Barge carriers do not have the speed associated with movement by truck, but they move large quantities at one time. On the other hand, railroads provide extra services such as transit, inspection, and diversion or reconsignment services and can handle large shipments at one time compared to trucks. For normal movement of grain, speed tends to be less important; and when considering all service factors of each carrier, it becomes more obvious that service is not significantly important in causing more grain shipments by truck.

The nature of the market may be more significant in causing an increase in the movement of grain by truck. Buyers needing special lots of a particular quality of grain may specify motor carriers. In such a case, speed may also be significant. As a rule, feed lot operators, small processors, or other specialized buyers may specify truck shipments.

The rate charged for the haul is of greater significance in the movement of grain, since truck and barge carriers do not provide service on a competitive basis with rail carriers. They provide no transit, inspection, or diversion privileges; and their lower rates reflect this limited service. The railroads have, in turn, initiated new rates with limited transit privileges in an effort to compete with the type of service provided by truck and barge carriers. Several of the rail rate reductions since May 1958 have been of this nature.

In the Pacific Northwest, Montana, and South Idaho, where traffic and competition have warranted rate reductions, the railroads reduced their rates. The increased use of these limited transit rates of the railroads and rates with no privilege charged by trucks and barges indicates that extra transportation services are of lessening importance to grain shippers. Transit rates continue to be important to buyers of grain for manufacturing into grain products, as indicated by the terminal elevator operators. However, the increasing differentials between transit rates and limited transit rates could produce adverse effects upon the milling industry.

Firms in the milling industry will probably continue to use rail carriers predominantly because of the transit privileges, since motor carriers, under present laws, cannot transport grain products under the agricultural exemption. In the Northwest, grain movement to the West Coast is predominantly for export and the need for transit is less, while diversion continues to be of prime importance.

Elevators that were almost solely dependent upon railroads at one time now ship grain by both rail and truck. The expanding market for grain, both for food and feed consumption in the Northwest and the West, offer increasing volumes for both rail and truck movement from the country elevators. With the continued construction in interstate highways, improvement of present State and Federal highways, and additional paving of unimproved roads, truck transportation will have more direct routes from producing to consuming areas.

Improvements in carrier facilities are making way for cheaper rail and truck transportation and continuing improvements in the inland waterway system are making way for improved barge transportation. Future plans call for a navigable channel up the Columbia and Snake Rivers to Lewiston, Idaho. The John Day Dam, now under construction, will relieve many of the navigational problems that exist on the Columbia River by providing a constant water level and deeper channel between the Dalles and McNary Dams. With the completion of the Day Dam larger tows of grain will be able to navigate the Columbia River.

Even with added improvements and facilities available for improved transportation of grain by motor and barge carriers, it is doubtful that these non-rail carriers will have a drastic effect upon grain marketing in the Northwest. Railroads will continue to be the major grain carrier. However, legislative action may be a major factor in determining future transportation policy.

Legislation proposed in the last year in Congress would have tended to equalize carrier competition if it had been passed. The railroads contend that they should be given a freer hand in determining their own rates according to what the potential rail traffic will bear if they are to compete with other carriers.

If each mode of transport is allowed to operate according to its own best interest, the grain marketing structure will profit by the development of carriers operating under competitive conditions. The result would be that railroads, trucks, and barges would all be used by shippers with each mode of transport being utilized where it is most beneficial to the grain shipper.

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